

HEALTH AT HOME

HOME REMEDY COMPANY

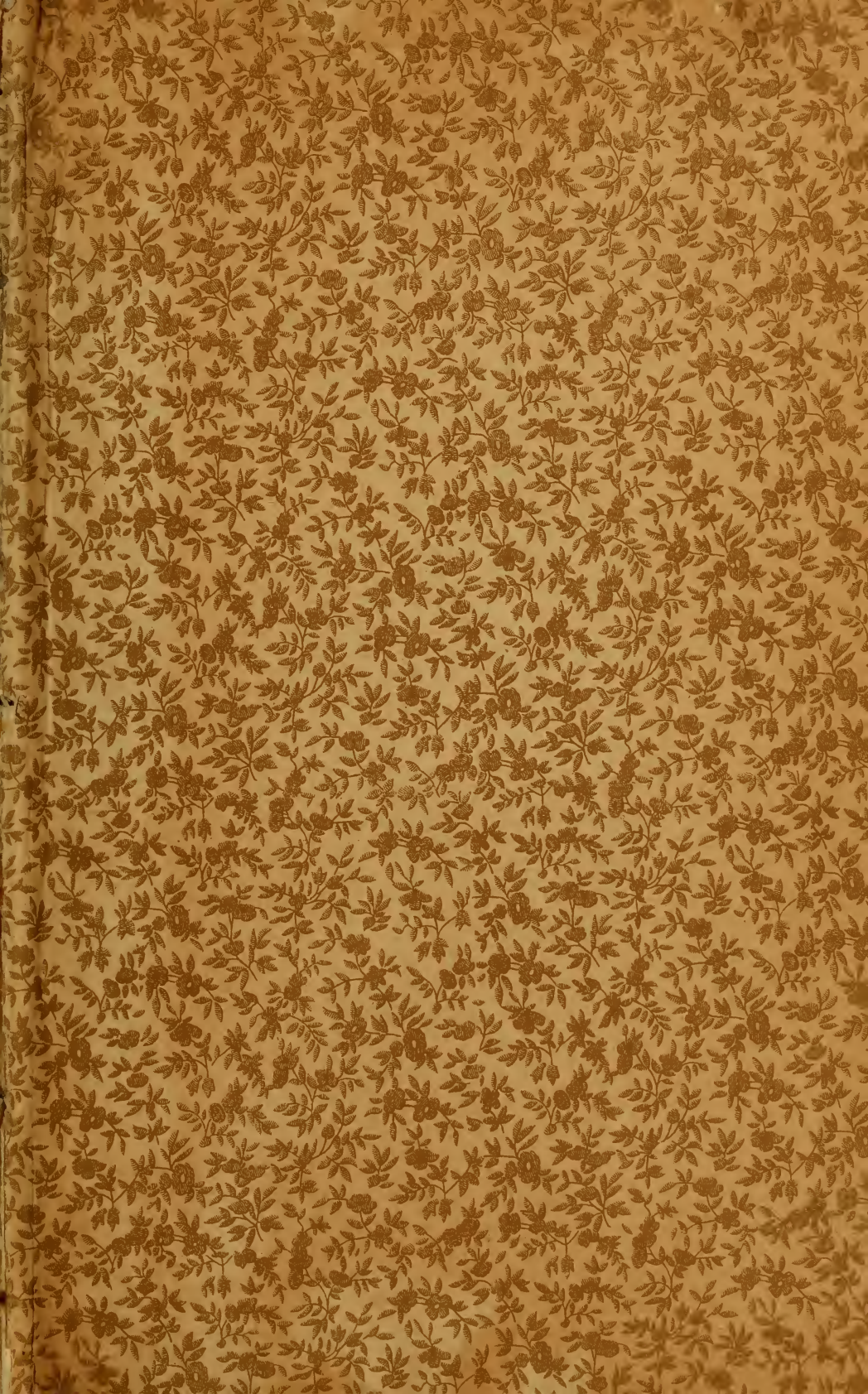
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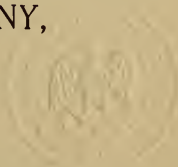


HEALTH AT HOME

A DIGEST OF MODERN MEDICAL SCIENCE

COMPILED FROM STANDARD AUTHORITIES

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HOME REMEDY COMPANY,
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TABLE OF CONTENTS.

Introduction.	Dysentery—Bloody Flux.
Hygiene—Health Rules.	Malarial Fever—Intermittent
Soils.	Fever—Fever and Ague—
Water.	Swamp Fever.
Removal of Excreta.	Hydrophobia.
Air.	Glanders and Anthrax.
Physiology of Digestion.	Trichinosis.
Food.	Bronchitis.
Discussion of Foods.	Asthma.
Alcoholic Beverages.	Hay Fever.
Non-alcoholic Beverages.	Congestion of the Lungs.
Exercise.	Pneumonia—Lung Fever.
Clothing.	Tuberculosis—Consumption.
Disinfection and Deodoriza- tion.	Pleurisy.
General Remarks.	Diseases of the Heart.
Nursing.	Acute Catarrh of the Stom- ach—Acute Indigestion.
The Sick Room.	Diseases of the Stomach.
The Bed.	Inflammation of the Bowels.
Bed Sores.	Colic—Gripes.
Circulation of the Blood.	Cholera Morbus.
Temperature.	Hemorrhoids—Piles.
Clinical Thermometer.	Diseases of the Intestines.
Respiration.	Diseases of the Liver.
Ventilation.	Neuralgia.
Diet in Disease.	Habitual Headache — Sick Headache.
Sick Room Dietary.	Paralysis.
Injections into the Bowel.	Diseases of the Spinal Cord.
Counter-irritants.	Infantile Paralysis.
Poultices.	Apoplexy.
Baths.	Delirium Tremens.
Massage.	Heat Stroke—Sun Stroke.
The Urine.	Hysteria.
The Observation of Symp- toms.	Nervous Prostration.
General Diseases.	Bright's Disease.
Smallpox.	Catarrh of the Bladder
Erysipelas — St. Anthony's	Rheumatism.
Fire.	Diabetes.

TABLE OF CONTENTS.

CONTINUED.

Scrofula.
Differences Noticed in Diseases.
Children and Their Diseases,
General Care of Infants and Children.
Peculiarities of Disease in Children.
The Administration of Remedies.
Counter-irritants.
Poultices.
Doses of Medicine for Children.
Diseases of the New-born Child.
Infant Feeding and Nutrition.
Diseases Dependent upon Food and Feeding.
Diseases of the Digestive System.
Diseases of the Stomach.
Diseases of the Intestines.
Worms.
Diseases of the Liver.
Diseases of the Respiratory System.
Diseases of the Genital Organs.
Diseases of the Nervous System.
Bone, Joint and Skin Diseases.

Specific Infectious Diseases.
Scarlet Fever.
Measles.
German Measles.
Chickenpox.
Whooping Cough.
Mumps.
Diphtheria.
Typhoid Fever.
Influenza—La Grippe.
Surgery.
Inflammation.
Antiseptics and Surgical Dressings.
Hemorrhage.
Wounds.
Snake Bites.
Lock Jaw—Tetanus.
Burns and Scalds—Frostbite.
Carbuncle.
Obstetrics—Childbirth.
Treatment of Poisoning.
Treatment of Cases of Drowning.
Diseases of the Eye and Ear.
Diseases of the Nose and Throat.
Index of Symptoms.
General Index.
Glossary.
Appendix.

PREFACE.

The need of a comprehensive book upon the subject of Medicine, and a book which can be read and understood by all seems to exist. The book which is here offered to the reading public makes no claim to be in any sense an original work but is a compilation from the best writers of the day upon the subjects treated. Many practical points, learned by personal experience, will be found in the volume but all standard authorities have been consulted and freely used in the preparation of this work. The authors do not claim that the book is a complete store-house of medical knowledge but rather a collection of practical hints and methods which will be an ever present aid in the home and which will furnish the means for gaining some slight medical knowledge by the people at large.

The diseases have been taken up under two heads general, and and children's, and in but few cases are the diseases described under both heads. Where a disease is a disease of children and also of adults it has, in most cases, been taken up under one head and reference made to the other form of the disease.

INTRODUCTION.

There has been, for many years, much discussion among leading physicians respecting the propriety of spreading knowledge of medical subjects among the common people. A certain class of the profession have bitterly opposed the idea of popularization of medical subjects, claiming that more harm than good would be done by so doing, since unqualified persons would thereby be led to undertake the management of cases which require the educated judgment and skill possessed alone by the physician who has had a long course of training in schools, and an extensive bedside experience.

We have long believed that this objection was based upon a partial and prejudiced view of the subject, and that a consideration of its various bearings from a more liberal standpoint would lead candid thinkers to a different conclusion. It would not be urged that because everyone cannot become learned in all the abstractions of modern theology, the masses should be kept in utter ignorance of religious theories, notwithstanding the possibility that such knowledge might be used in an unwise manner under some circumstances. Every man, who desires to do so, has as good a right to learn all he is capable of comprehending of the science of medicine, as he has of the science of mathematics, astronomy, law, or any other department of human knowledge. We further hold that the best way to check the rapidly increasing consumption of "patent medicines" and the patronizing of the innumerable "quacks" who claim to perform miracles, is to educate the people out of the superstitions upon which alone the nostrum vendor and the brazen "quack" thrive and flourish. To this end the study of anatomy, physiology, hygiene, and particularly the laws of life, with the influence thereon of habits, conditions and surroundings, should enter largely into the education of the young and should be carried on through life. They should be taught that all unhealthy conditions are the result of

transgressions of nature's laws, that every effect has its antecedent cause and that these effects follow their causes as certainly as night follows day. They should be taught the difference between a healthy and an unhealthy environment. These subjects are fully treated in the chapter upon Hygiene and should be read and studied carefully by everyone. It has been the endeavor of the authors of this book to produce a comprehensive digest of the latest standard authorities known to the scientific profession of medicine, upon all the subjects treated, avoiding as far as possible the use of technical names, and where it is necessary to make use of technical terms, to fully explain their meaning in simple language. Our idea is not to place in the hands of the public a book, and it's accompanying cabinet of remedies and appliances, which will enable them to dispense with the physician in all cases, but rather to provide a means by which the efforts of the physician may be supplemented and many visits rendered unnecessary. Long and extensive experience has convinced us that a large proportion of the visits made by physicians are unnecessary and could have been avoided had the proper remedies been at hand and the ordinary knowledge and common sense required for their use been exercised. Nature herself is a grand physician, and, given opportunity, performs wonderful cures. The most successful physicians are those who constantly recognize nature's power as a healer and who direct their efforts to the removal of the cause of sickness and to aiding nature to restore normal conditions. In the preparation of the cabinet of remedies which accompanies this work we have carefully selected only those remedies and combinations which have been thoroughly tested and proved to be safe and reliable, and which are known to produce the result desired in the particular conditions for which they are prescribed. We have adopted the plan of preparing all of our remedies in tablet form and as far as possible making use of only the active principle of the drug in the tablet. By this plan we secure a form of drug which will not deteriorate by keeping, as the powders from which the tablets are made are thoroughly dried before being compressed. Our specially designed screw top bottles, by hermetically sealing the bottle when screwed down tightly, also affords additional means of preserving the purity of our preparations. A further reason for the use of the

use of the tablet form in our remedies is that it enables us to use the most accurate dose and reduce to a minimum the quantity of drug necessary to produce the desired effect, thus avoiding overloading the stomach with irritating and nauseous drugs, which is unavoidable when the ordinary form of tinctures and fluid extracts is used. In the preparation of our tablets we have used the minimum single dose in each tablet, thus rendering the taking of an overdose impossible except by the exercise of the most gross carelessness. Throughout this work we have, when recommending a drug or remedy, referred to such drug or remedy by number. Our reason for this is that many drugs bear similar names and to one unfamiliar with scientific and technical terms, great danger of mixing drugs by confusion of names would exist; particularly would this be so when laboring under stress of excitement in case of sudden illness, or injury, or should the necessity of immediate use of a drug occur during the darkness of night. Again in making the selection of a remedy from the cabinet it is much more easy to find a certain number, when arranged in order, than it would be to find the same remedy if it were necessary to look for an unfamiliar name, and to avoid all possible error each individual tablet bears its proper number.

In the further preparation of the Home Remedy Cabinet we have included such instruments and appliances as our experience has taught us can be used to great advantage in every home, and by their use much knowledge can be obtained which would otherwise be impossible. Every instrument and appliance is standard and thoroughly reliable and when used intelligently and carefully add enormously to the value and usefulness of the cabinet. In the administration of remedies to obtain the best results it is essential that they be absolutely pure, and free from deleterious substances. The Home Remedy Company guarantee the absolute purity of all their preparations and advise that all remedies be procured from them. Each cabinet contains a printed list, with prices attached, and we guarantee to supply the remedies at the prices there named which are lower than druggist's prices, and we guarantee absolute purity and reliability. The Home Remedy Company also carries a full line of drug supplies and appliances which will be found listed in the back of this book, and from which list the users of the book and remedy cabinet

can order, either by mail or express, whatever articles they may need, with absolute assurance of fair dealing and reliability. All of our goods are listed at the lowest price consistent with the best of material and reliability.

As good health is man's best inheritance, every precaution should be taken to preserve and maintain the body in a healthy and normal condition, and that this effort is constantly being made is proven by the wide spread use of innumerable "patent medicines," nostrums and so-called "panaceas." To such an extent has the use of nostrums spread, that it may almost be said to constitute a national habit, and it is to combat this use of "patent medicines" which have for their purpose merely the relief of certain symptoms, and not the cure of the disease, that the book, "Health at Home," and its accompanying Home Remedy Cabinet, is placed in the hands of the people, so that any one of ordinary intelligence may be able to recognize the more common forms of ailments and apply the correct and scientific remedy demanded, thus preventing the saturation of the system with what are usually but combinations of alcoholics and opiates, which, if continued, result in poisoning the system, disarranging the digestive functions, and disturbing the nerve centres, often leading to the formation of the drug habit, which produces untold suffering and misery. No home should be without the simple remedies needed to relieve the ordinary forms of disease; and indeed such remedies as quinine, salts, sage tea and various salves are found in every home. But how much better it is to have at hand ready for instant use pure and safe remedies of known scientific value, with full directions for their use. What a comfort it is to parents to know that they have at hand means for treating any and all conditions which may arise in the lives of their children? With the book, "Health at Home," and the Home Remedy Cabinet at hand, the strident, barking cough of croup loses its terrors, the cold in the chest may receive its proper remedy at the proper time, the delirium of high fever in a teething child may be checked and convulsions prevented, and the mother will time and again have the satisfaction of hearing the physician, when he arrives, say to her: "Your prompt treatment has prevented your baby from having lung fever." In this way the preparatory treatment will have begun and much time

and many visits by the doctor will have been saved, thus lessening the expense, besides saving the patient much suffering. As a further means of economy may be mentioned the time lost to a wage earner by sickness, which may be greatly lessened by prompt application of the proper remedies before the disease has fastened itself upon the system, and also by careful observance of the rules of healthful living, which latter are fully and plainly brought out in the chapters on Hygiene and Diet, many of the common ailments may be entirely prevented; and, after all, the tendency of modern scientific medicine is toward the prevention rather than the cure of disease, and the true physician endeavors by advice and teaching to so educate and train his patients that they may avoid disease. That this is true is shown by the great reduction in the frequency and virulence of epidemic diseases. In fact, epidemics have almost disappeared in most civilized countries, and could the mass of people be brought to avoid errors of diet, excesses of passion and exposures to inclemencies of weather, as they avoid exposure to smallpox, diphtheria or scarlet fever, a vast amount of functional disease would disappear.

With this object, of preventing disease as far as possible, we have devoted separate chapters to Hygiene and Diet and have endeavored to place before our readers in a condensed form all the essentials of right living, and to describe in as clear a manner as possible the environment best suited for normal and perfect development of the human organism. It will probably seem to our readers that such an environment borders upon the ideal; this may be true, and is, in fact, what we have endeavored to depict, since, after all, the highest aim in life should be the attainment of the ideal, and happiest is he who most nearly approaches the goal. With this explanation let us urge upon you to carefully read and study, at your leisure, the chapters upon Hygiene and Diet, confident that you will be amply repaid.

In the preparation of this book we have found it necessary to combat in its teachings many ancient superstitions, and the usefulness of many household remedies for ills and sickness will be denied; but resting securely upon the solid foundation of *scientific knowledge* we do not hesitate to overthrow such household idols as the belief that if a running sore is checked it will break out elsewhere—a popular belief which has numbered its victims

by the millions. Take the one instance of a discharging ear, where even the standard advice of the old fashioned physician was, "Do not dry up the discharge or it will cause inflammation of the brain," an idea conceived in ignorance and nurtured in lack of ability to cure the disease, and because having seen certain cases in which a cessation of the discharge from the ear had been followed by inflammation of the brain, the conclusion came that the stopping of the discharge caused the more serious inflammation of the brain, when the opposite condition in reality prevailed and the extension of the inflammation of the ear to the brain caused the stoppage of the discharge from the ear, and had the inflammation of the ear been properly treated and the discharge stopped, the inflammation of the brain would not have occurred. Again, many a cut or scratch has been prevented from healing by first intention and caused to suppurate by the application of a bread and milk poultice, which is allowed to remain until decomposition of the mass begins, in the vain hope that it will "draw out the fever." By this plan the conditions are such that the formation of pus is favored and the wound, instead of closing at once as it would do under antiseptic dressing, leaving but little, if any, scar, must heal by granulation and leave broad dense scars, significant of improper and uncleanly methods of treatment of wounds.

From the preceding paragraph it will be seen how necessary it is that some means of scientific knowledge of wounds and injuries should be in every home, and for this reason the chapters upon Surgery, Surgical Dressings and Antiseptics are especially full and complete, and every parent should carefully study the principles and methods therein set forth. With the knowledge to be obtained from such perusal and the use of the dressings and appliances found in the cabinet, prompt and proper treatment may be given all the ordinary injuries likely to occur.

To mothers, especially young mothers and those living far from drug stores and doctors, will the chapters devoted to the care and rearing of infants be interesting and helpful. Every rule, every statement, and all the advice contained in the chapters named has the highest authority and has been verified time and again in daily practice and observation. By careful attention to the teachings given in the section devoted to the diseases

and management of children, a vast amount of infantile suffering may be prevented and thousands of children reared to maturity and made useful members of society who would otherwise sicken and die solely from lack of care through ignorance on the part of the mother, of the proper manner of caring for her babe. The children of the household are God given treasures, and the most sacred obligations of motherhood enforce the duty of knowledge of the best and proper methods of caring for helpless infants, and failure to so instruct herself comes but little short of crime on the part of her to whom infant life is intrusted. The chapter upon Nursing is in some respects the most important of all. In it are given the essentials of good nursing as it is now taught in our modern training schools. There is no nobler occupation than that of ministering to the comfort of the sick and suffering, and nothing is more important in the treatment of disease than proper care and nursing. Thousands of desperate cases have been saved from death by a faithful and devoted nurse and in many diseases good nursing occupies an equal place with good medicine. What could be more grateful to the fever tormented sufferer than the refreshing sponge bath administered by a skillful nurse, or what is more important to the favorable termination of a case of typhoid fever than a constant care and regulation of the diet by a skilled and intelligent nurse?

In the human system there is a constant change taking place in the tissues. This change is called waste and repair and to maintain the normal equilibrium of the body, the necessary material for repair must be constantly supplied. This material is furnished by the food taken into the body, and the perfection of repair depends upon the character and quantity of the material furnished. In the chapter on Food and Diet the subject is fully discussed and the advice there given is based upon the best physiological knowledge obtainable and should be carefully studied by everyone.

HYGIENE—HEALTH RULES.

According to Dr. Parkes, "Hygiene is the art of preserving health; that is, of obtaining the most perfect action of mind and body during as long a period as is consistent with the laws of life. In other words it aims at rendering growth more perfect, decay less rapid, life more vigorous, death more remote. Taking the word hygiene in the largest sense it signifies rules for perfect culture of mind and body. It is impossible to dissociate the two. The body is affected by every mental and moral action; the mind is profoundly influenced by bodily conditions. For a perfect system of hygiene we must train the body, the intellect, and the moral faculties in a perfect and balanced order."

Whether the world will ever see such a system of hygiene no one can say, but as time passes, glimmerings of hope may be seen. While mankind still suffers from indulgence and weakness and many errors, it can be truly said that knowledge is increasing and that if mankind would but make use of the knowledge attainable he could to a large degree control his future physical being.

Again quoting from Dr. Parkes: "It is undoubtedly true that we can, even now, literally choose between health and disease; not, perhaps, always individually, for the sins of our fathers may be visited upon us, or the customs of our civilization and social customs may gall us, or even our fellow men may deny us health, or the knowledge which leads to health. But as a race man holds his destiny in his own hand and can choose between good and evil, and as time unrolls the scheme of the world it is not too much to hope that the choice will be for good."

Considering only that part of hygiene which has to do with the subjects treated from a medical standpoint, we may arrange a system of rules governing the life of individuals and communities at different periods of their existence. We would commence with

the mother and regulate her health before the birth of the child, thus securing the best development possible for the unborn babe.

After a child is born, the life of the individual may be divided into three grand divisions or epochs: First, growth or development is the most important of all periods, since the growing organism is much more profoundly influenced by environment than it is after the body has reached maturity and ceased to grow, and it is during this period that best results of hygienic living are to be attained; second, maturity, during which epoch physical growth practically ceases, and the body remains seemingly stationary, surrounded by fixed habits, often so powerful in their influence as to negative, in large degree, the influences of environment; third, decay, the epoch during which man travels down the hill of life, and, losing the protecting power of fixed habits, gradually becomes more and more susceptible to the influences of environment. Decay progresses without actual disease, attacking first one portion of the body and then another, until general decay and death arrives. In these several epochs of his life the human being would have to be considered. First: In relation to the natural conditions which surround him and which he must have in order to live. These essential conditions of life are air, water, food, heat and light. Second: In his relation to his fellow men, as in the effect of such social and communal customs as trades, character of dwellings, clothing, political influences, and sexual relations, all of which have an influence upon his mental and moral being, and through these channels affect the physical being. Third: In relation to his personality, feelings, thoughts, desires, and all mental processes, which affect the health and require self-regulation and control. Such a plan of hygienic control, if followed out to its ultimate results, would revolutionize the world.

There are, however, many reasons why such a comprehensive plan of hygienic control could not be carried out, no matter how honestly the individual might strive for the attainment of the ideal. One reason, for example, why perfection in hygienic rules cannot be attained is the fact that the carrying on of many of the trades and vocations demanded by civilization require not only that the individual engaged in conducting the work shall be surrounded by evil conditions, but the conditions of the work

are such that whole communities in the vicinities of the works or factory are brought within its contaminating influences. Pure air is a necessity for health, but how much control can an individual exercise over the fouling of the atmosphere of a community by the smoke of a dozen tall factory chimneys? An instance illustrating this point is afforded by the atmospheric conditions surrounding the large copper smelters at Butte, Montana. The ore which is smelted contains large amounts of arsenic and antimony, the fumes from which escape in considerable quantities, causing a large number of cases of sickness among those people living in the vicinity of the works. Foul streets, poor drainage, a contaminated water supply are all general unhygienic conditions over which the individual has but a limited control, and which properly belong to State Medicine, a branch of greatest importance and one which, fortunately for all, is becoming more generally recognized each year as a public necessity and benefaction, and the scope of which is being constantly widened. There exist, however, conditions which at the present time are, and we fear will continue to be, beyond the reach of state control; as for example the dwellings of a large number of the poorer classes, which are unfit for human habitation. This is true not only in our cities, but even to a greater extent in many rural districts. This lamentable condition can be changed only by educating the people and teaching them not only the evils of unhygienic living, but how to live properly.

SOILS.

Soils consist of mineral, vegetable and often animal substances; in the spaces between each particle of soil are also air and often water. The conditions and constituents of soil have an important bearing upon health, and in this chapter will be given the important rules governing the selection of the best soil for a home, and that the subject may be made clear each constituent of the soil will be taken up and discussed separately.

Air in the Soil—Only the hardest rocks are free from air; loose sand, gravel and dirt contain the greatest amount of air. It

is moist, very rich in carbon dioxide, and often contains organic substances and germs derived from decaying animal and vegetable material. The air in soils is in continual movement, especially if the soil be dry. This point is important, as currents of air from the ground are frequently drawn into the dwelling, and should such air be drawn from the vicinity of a cesspool or broken drain, disease germs will be introduced and sickness result. The only certain manner of preventing ground air from entering the house is to thoroughly cement the floor of the cellar and plaster the foundation walls upon the inner surface with a good coat of hydraulic cement. All houses built upon "made soils," or upon ground which has been filled in, should be thoroughly cemented before being occupied. A good substitute for the cement is asphalt. Where neither cement nor asphalt can be secured the house should be raised clear of the ground and free ventilation of the space between the surface of the ground and floor of the house provided by numerous openings in the foundation walls upon opposite sides of the house. As a rule loose, porous soil is considered the most healthy; this, however, is not so much on account of the character of the air which it contains as because of its better drainage and freedom from moisture. The diseases which have been attributed to ground air are: intermittent fever, typhoid fever, yellow fever, epidemic diarrhoea, cholera, dysentery and diphtheria.

Water in the Soil—In soil we have moisture and ground water. When air as well as water is found in the soil it is merely moist. When ground water is spoken of, we mean the water that fills all the spaces between the solid particles of the soil. The amount of water in the soil depends upon the character of the soil, but water is found to a greater or less degree in all soils, from the loose porous sand to the hardest granite, which latter will contain from five to fifty pints of water per cubic yard of stone. The water in the soil is derived from two sources: that which falls as rain and is absorbed by the soil, and that ground water which comes up from below, chiefly by capillary attraction, the water following minute cracks and channels in the soil. These ground waters carry more or less minute mineral substances, such as iron, lime, magnesium, sulphur and soda, and

should their channel carry them into the vicinity of any decaying animal or vegetable matter, contamination may and does occur.

The Effect of Ground Water upon Health: Wet soil affects health in two ways: first, by the water itself causing a cold soil and a damp air, thus favoring the development of catarrh and rheumatism, and second, by aiding decomposition of organic substances, thus producing poisonous emanations.

Decomposition of organic substances, animal or vegetable, is the result of three factors—heat, air and moisture. The most important of all is moisture. A substance perfectly dry cannot undergo decomposition, as decomposition is produced by low forms of life, classed under the general term of germs, which cannot exist without the presence of moisture.

The diseases which are either the direct result of or are rendered more active by moist conditions of the soil are rheumatism, catarrh and neuralgia. They thrive and are more violent on moist, cold soil. Most people are more healthy on a dry soil.

Consumption: Statistics show that thorough draining of the soil has greatly diminished the death rate from consumption in certain localities.

Malarial Fever: All localities in which malarial fever flourishes are wet; but it seems necessary that a certain degree of heat must obtain in order that the germ of malarial fever may reach its fullest development. Thus we find that in the swampy low lands of warm countries malarial fever is ever present, while in the no less extensive swamps and marshes of the far north malarial fever is seldom or never encountered. When localities which have been noted for the violence of malarial fever have been thoroughly drained it is found that the malarial fever disappears or is greatly reduced in violence and frequency. In newly opened agricultural districts, where there is extensive upturning of the soil and imperfect drainage, malarial fever prevails, but as years pass and drainage systems become perfected, a gradual disappearance of malarial fever is noted.

Typhoid Fever, Cholera, Epidemic Diarrhea and Dysentery: These are more virulent and fatal in wet, poorly drained localities, since the specific germs by which these diseases are caused find suitable conditions for development in the moist condition of the soil.

WATER.

A sufficient supply of good water is an absolutely essential element of good sanitary surroundings and health. Without pure water or with an insufficient supply health always suffers. Impurities in drinking water are perhaps the most prolific causes of illness; undoubted evidence has been furnished of late years pointing directly to the water supply as the means of introduction into the system of the germs of typhoid fever and dysentery particularly, and probably also the germs of many other diseases of an epidemic character.

Quantity of Water for Healthy Men—In all cases the supply should be plentiful. Cleanliness is essential to good health, and pure water in plenty is necessary in order to be cleanly. The essential quantity for each individual should include that for drinking, cooking, washing of person, clothes and utensils, for cleansing closets, sewers, streets, etc., and in cities an amount necessary for the use of animals, washing of carriages and stables, for manufacturing purposes, fire protection, etc. This has been found to be in large cities from twenty-three gallons per head of population per day in Liverpool, England, to eighty-three gallons in New York.

An adult requires from three and one-half to five pints of water daily for proper nutrition, but about three-fourths to two pints of this amount is contained in the solid food taken and the remainder in some form of liquid. There are, however, wide ranges of variation from the average. Women drink less than men; children, of course, drink absolutely less, but more, in proportion to their bulk, than adults.

Sources of Water Supply—The sources of water supply are wells, cisterns, springs, rivers and lakes.

Quality of Drinking Water—Rain Water—Rain falling through the air takes up large quantities of matter in the form of gases. These gases consist of oxygen, nitrogen, ammonical salts, (carbonate, nitrate, etc.) and various acids, such as nitric and sulphuric; these are especially present in the rain falling over towns where a large quantity of coal is burned.

The rain also carries down large quantities of solid substances, such as salt (in sea air), calcium carbonate, sulphate and phosphate, which are various forms of lime. Rain water also almost always contains more or less organic matter, and in towns the debris of street dust. Rain water, however, when properly collected and stored, is perhaps the purest and healthiest water for drinking purposes, and, owing to the small quantity or entire absence of lime, it is what is known as "soft," requiring a less amount of soap than the lime or "hard" water, and is most desirable for washing. In collecting and storing rain water great care should be exercised; the roof or surface upon which the water is caught should be kept clean and free from the contamination of birds, pigeons being especially liable to foul a roof from which water is drained into the cistern. The cistern should always be constructed with a filter wall, consisting of a single course of soft brick enclosing a small space into which the water flows from the downfall and from which it then percolates into the main body of the cistern.

Well and Spring Water—Shallow wells, or those which do not penetrate into and derive their water from the solid rock, are perhaps the most dangerous sources from which water can be obtained. This is especially true when they are located in the thickly settled portions of cities and towns. The soil above bed rock is permeated by water channels, and the water on the surface, after absorbing all manner of impurities, carries them in solution into the ground, and it is from this source that shallow dug wells and driven wells derive their supply. Into them pass the drainage of filthy stable yards, cesspools and privy vaults, laden with disease germs. Many cases of typhoid fever can be directly traced to the use of water from a well so located that the seepage of a privy vault drains into it. Thousands of innocent children have sickened and died of bowel trouble caused by impure water drawn from a fifteen-foot driven well so located as to catch the drainage of the stable yard. In all cases where a well is sunk for supplying drinking water it should be put down deeply into the bedrock and then carefully curbed from bed rock to surface, so as to exclude all surface water. The water from deep wells and springs, as a rule, is free from organic impurities

or the products of decay, but they always carry more or less inorganic or mineral substances, which as a rule are not injurious to health. Sulphur, lime and iron are the most common mineral ingredients.

River Water—River water is, as a rule, more or less contaminated by sewage and surface impurities, and should be used with great caution, especially at or near large cities or towns. As a general rule all river water should be passed through a good filter, or better, boiled before using for drinking purposes. Lake water offers the same objections as river water, and to a greater degree, when taken from the radius of contamination of the sewage of a city upon its shores, on account of the absence of flow or current, which, in a river, exerts a powerful purifying influence.

Distilled Water—Distilled water is to most people unpalatable, being tasteless and flat, due to the absence of air; this may in a large measure be remedied by forcing the water through a spray apparatus, whereby the water is broken up into fine streams, thus allowing it to take up air. In distilling water care should be taken that no lead, zinc or copper finds its way into the water. The pipes in a water still should, if possible, be made of block tin.

Artesian Well Water—The composition of artesian well water varies greatly. Nearly all artesian waters carry more or less mineral matter in solution, often to such an extent as to render them undrinkable. The temperature is usually higher than surface water, and increases with the depth of the well; the contained air is diminished. Often air is entirely absent, as it is in distilled water. These two features at times render artesian water from very deep wells unfit for drinking.

General Conclusions by Dr. Parkes—I. "An epidemic of diarrhea in a community is almost always owing either to impure air, impure water, or bad food. If it affects a number of persons suddenly it is probably owing to one of the two last causes, and if it extends over many families, almost certainly to water. But, as the cause of the impurity may be transient, it is not easy to find experimental proof."

II. "Diarrhea or dysentery constantly affecting a community or returning periodically at certain times of the year is far more likely to be produced by bad water than by any other cause."

III. "A sudden and localized attack of either typhoid fever or cholera is almost certainly owing to the introduction of the poison by water."

IV. "The same fact holds good in cases of malarial fever and especially if the cases are very grave, a possible introduction by water should be carefully inquired into."

V. "The introduction of the ova of certain entozoa by means of water is proved in some cases—is probable in others."

VI. "Although it is not at present possible to assign to every impurity in water its exact share in the production of disease, or to prove the precise influence on the public health of water which is not extremely impure, it appears certain that the health of a community always improves when an abundant and pure water supply is given; and apart from this actual evidence we are entitled to conclude from other considerations that abundant and good water is a primary sanitary necessity."

REMOVAL OF EXCRETA.

All excreta should be immediately removed from dwellings. This is best accomplished by means of water acting through a sewerage system, as the water supplied in pipes to houses is under pressure and the force thus developed can be utilized in carrying away not only the excreta, but also the slops and sink water from the dwelling.

In order that this plan may be effective, however, it is necessary that there be a sufficient supply of water, and that the arrangement of pipes be such as to offer no obstruction to the free and rapid flow of the waste water, and that proper arrangements be made for the disposal of the sewage matter. All sewers should be strongly and tightly built, as they are often subjected to considerable pressure, and a leak or a bursted pipe constitutes a source of contamination for the soil surrounding the dwelling and possibly the water supply. Where the leak or break occurs with-

in the house it permits the escape of sewer gas into the house, spreading disease germs and contagion and poisoning the air.

Water Closets—In the construction of water closets the following points should be observed: First, that the amount and force of the water be sufficient to thoroughly cleanse and sweep out everything in the bowl; second, that the soil pipe be ventilated beyond the bowl by a pipe of the same size, being carried up to the top of the house; third, that the connections of the bowl pipes and soil pipes are perfect and allow of no leakage. The amount of water used to flush the bowl should be from two to five gallons, never less than two, and the fall from tank to bowl should not be less than three to four feet. The location of the closet in the house is of great importance. If possible it should be in an out-building or a projection, with thorough ventilation between it and the house. In a two-storied building it may be put in a small room in the attic, which can be thoroughly ventilated. When necessary to place the closet upon the same level as the living rooms it should, if possible, be located at a corner of the building, so that outside windows can be had on two sides of the room, permitting a current of air to pass through. The windows in a closet should always extend quite up to the ceiling, and a ventilator should be placed in the ceiling of the room, connected by a large pipe with the outer air through the roof. The plan of placing closets in the basement should be entirely abandoned, as closet air is certain to be drawn into the house.

Outhouses, Privy Vaults and Cess Pools—When it is not possible to connect dwellings with a sewerage system the greatest care should be used in the location of the privy vault to avoid contamination of the dwelling and water supply. The location should be such that all drainage from the vault shall be away from the dwelling, wells and cistern. From what has been said in previous pages regarding the free passage of gases and water through ordinary soils, it can be readily seen how contaminating material can be carried into a well or, by means of the air, into the dwelling should the location be such that the drainage will be toward the dwelling. All vaults and cesspools should be on lower ground than the dwelling, and situated at least 150 feet from the house or well.

In the construction of privy vaults care should be taken that they be dug of sufficient depth—not less than twelve feet; the vault should be walled up with brick or stone, and covered throughout, walls and floor, by a good coat of cement or asphalt; the building over the vault should fit tightly over top of vault, and all openings should be covered by tightly fitting lids, which should be kept tightly shut when not in use; the vault should be provided with a ventilator, connected with outer air by a pipe carried through the roof. The vault should be cleaned at least once a year, or oftener, depending upon the number of people using it; and should it become foul, the use of one-half bushel of slacked lime sprinkled over the surface of the contents of the vault will act as a deodorizer.

AIR.

The air which we breathe is the most important substance which we regularly take into our systems. It is the only element which enters directly into the blood, without alteration or modification, and the only safeguard provided by nature against the entrance of impure air is the sense of smell, which, as a rule, enables the individual to detect most of the impurities of the air breathed. Constant exposure of the organ of smell to impurities, however, dulls its sensibility and diminishes its power to protect. The food and water taken into the system undergo complete changes in the stomach and bowels before being absorbed or taken up by the tissues, and the majority of harmful substances are thus neutralized or eliminated; or, should they be of an irritating character, they are promptly rejected by the stomach, and vomiting is produced. But the air taken into the lungs passes directly from the air cells into the blood and thence into the tissues without alteration or purifying.

Impurities in Air—These are found in three forms: gases, vapors and solid particles. The senses of taste and smell will detect many of them; others, however, give no warning, or so slight a warning as to be disregarded. Nature has provided certain means of purifying the air by which many deleterious

substances lose their power for evil; gases diffuse and expand and are carried away by air currents, which so reduces the quantity of poison present in the respired air as to greatly diminish its power for harm; or these gases are washed down by rain and then return to the earth. Solid substances, lifted by the wind, fall by their own weight, or, if they are of animal or vegetable matter, are oxidized or burned by the oxygen present in air, and thus separated into their simple elements, which are not harmful in ordinary amounts. Diffusion, dilution by winds, oxidation and fall by rains are the great purifiers, and to these must be added the power of vegetation to extract from the air the carbon dioxide, which is necessary for its growth.

Respiration or Breathing—The lungs take in the atmospheric air in regular quantities, and when the air reaches the air cells or the minute terminations of the bronchial tubes an interchange of gases between the air in the lungs and the blood in the arteries and veins takes place, the air giving up to the blood that portion of oxygen which the body requires, while the blood, in turn, transfers to the air the carbon dioxide, or the product of tissue changes, which the blood has absorbed in its circuit of the body. This normal balance of gaseous composition between the air and blood must be constantly maintained. Should the air not contain a sufficient amount of oxygen to balance the amount of carbon dioxide which it is necessary to remove from the blood the unremoved portion constitutes an excess, and is again carried back to the tissues, where it acts as a poison and produces disease. Thus a person or a number of persons confined in an unventilated room soon exhaust the oxygen contained in the air of the room and, in the absence of a fresh supply, the foul and vitiated air is breathed over and over again until, unless fresh air containing oxygen is admitted, it will fail to support life. All movement or bodily functional activity results in tissue change, which is accompanied by the production of carbon dioxide, and the only means of removal of this gas from the system is through the blood and lungs. But there must be supplied at the same time a corresponding volume of pure oxygen to take its place and to maintain the normal gaseous balance in the tissues. Thus it may be seen how necessary it is that a proper amount of pure air be

supplied at all times, and it is especially necessary that the sleeping rooms be thoroughly ventilated. Do not be afraid of plenty of fresh air. The only danger in fresh air is when it strikes the surface of the body in the form of a draught; then it is likely to produce chilling of the surface of the body and a cold will be taken, but if the body be protected from draughts the breathing of fresh air, no matter how cold, can do no injury, nor will one catch cold.

Methods of Ventilation—In ventilation two considerations obtain: first, means for introduction of fresh air from the outside; second, an outlet for the impure air. The air of a living room as it becomes impure and heated rises to the ceiling and occupies the upper portion of the room, while the colder, fresh air, being heavier, descends to the floor on entrance to the room, and as it becomes warmer gradually ascends, carrying the impurities with it. Such being the case, a plan of ventilation should consist of an opening or openings at or near the ceiling for the escape of the foul air, and another opening or set of openings near the floor to permit the entrance of fresh, pure air from the outside. These openings should be so arranged that a direct draught will not be formed. This can be provided for by constructing an elbow in the metal lining of the passage, directing the mouth downward and carrying it down, so that the opening shall be below the level of the passage through the walls. In rooms heated by stoves a considerable amount of foul air is carried out by the draught, and ordinarily the room is thus kept fairly well ventilated, especially if the precaution be taken of providing for an opening through which fresh air may enter from the outside. The best of all means of ventilation is the open hearth fire or a good grate, and no dwelling which is heated by hot air furnace or steam pipes, and especially the latter, should be without one or more fire places for ventilation.

In the colder portions of our country it has been the extensive practice to provide our doors and windows with double doors and windows, thus rendering it much easier and cheaper to heat the house in severe weather. The saving, however, is obtained at the expense of good ventilation, unless arrangements are made whereby at least one of the storm windows in each room is

hinged, or provided with a hinged aperture, which may be opened for a portion of each day, in order that the room may be thoroughly aired. In the case of a sleeping room the window should be left slightly open during the night, and provision made against the lowered temperature of the room by increasing the bed clothing. The importance of plenty of fresh air in a sleeping room cannot be overestimated and no one in ordinarily good health should fear night air.

The ventilation of a room in which a sick person is confined cannot be too carefully looked after. Special agents for contaminating the air are present in most cases of illness, and this is especially true in all cases of acute infectious diseases, such as scarlet fever, measles, diphtheria and all forms of fevers. Whenever possible when a long or severe attack of illness is anticipated the patient should have the use of two connecting rooms, so that while one is occupied by the patient the other may be thoroughly aired, and all poisonous emanations be completely removed before the patient is returned to the room. Where this can be done one room should be used for the day room and one for the night room, the sunniest and brightest room being chosen for the day room. Not only does this plan secure the greatest possible amount of fresh, pure air for the patient, but the changing of rooms, by breaking the monotony of constant, unchanged surroundings, is of the greatest benefit to the sufferer. Where it is not possible or practicable to make use of the double rooms an open fire in a grate or upon the hearth, even in moderately warm weather, will insure constant change of air if used in connection with an open window or other means of entrance for fresh air, besides adding greatly to the cheerfulness of the room, and so brighten up the depressed, low-spirited patient.

Gas from Sewers and House Drains—If in sufficient quantity this gas may produce rapid poisoning, asphyxia and death; but usually the gas is in such diluted condition as to constitute a slow poison, which, acting upon the system, produces disease, especially in children, and which is accompanied by languor, loss of appetite, attacks of vomiting, diarrhea, colic and prostration. There is a feverishness, and the blood, by being deprived of its proper amount of oxygen, loses a portion of its

red blood corpuscles; headache is also a constant symptom. The diseases which seem especially liable to accompany foul air of sewers are diarrhea, typhoid fever, and diphtheria. Abundant evidence has been secured to prove their relationship.

Warming of Houses—The heat of the human body may be preserved in two ways: First, the heat generated in the body, which is continually passing off and being carried away by the moving air, may be in a measure retained by the clothes; and, given a sufficient amount of proper food, the clothing may be so regulated that normal health may be retained with but little application of external heat. In fact some of our most vigorous races inhabit the cold countries; and in temperate climates healthy adults are undoubtedly benefited by external cold, provided food be sufficient, and the internal warmth of the body be retained by clothing. Second, external heat may be applied to the body, either by the heat of the sun or by artificial means.

The points to determine in respect to warming of dwellings are: First, what degree of artificial warmth should be given? Second, what are the different kinds of warmth, and how are they to be given?

Degree of Warmth—*For Healthy Persons*—Infants and old persons require much artificial heat, in addition to abundant food and clothes. The lowering of the temperature, especially when rapid, is very depressing to the very young and to the old; and when we remember the extraordinary reviving effects of warmth we cannot be surprised at this. For adult healthy men, who are properly clothed and fed, the degree of temperature of the house does not make any great difference, and perfect health and even comfort can be maintained with a wide variation of temperature; but for healthy adults an average temperature in a dwelling of 68° F. seems to afford the best condition. For children and old persons the temperature should be considerably higher, old people often requiring a temperature of even 72° or 75° F.

In regulating the heat for children it should be remembered that small bodies have a much larger surface in proportion to bulk than larger bodies, so that the body of a child, producing a certain degree of heat, offers a much larger radiating surface in proportion to the bulk than a full grown adult.

For Sick Persons—The degree of temperature for sick persons is a matter of great importance. There seems to be a general rule that the air of a sick room should be about 60° F., but this may be varied to advantage in many cases. There are many diseases which are greatly benefited by a low temperature, especially all those in which there is a rise in the bodily heat. In all fevers, except those attended by great depression, as is often the case in scarlet fever, and during the stage of the fever when collapse is likely to occur, it is desirable to have the temperature of the room as low as 50° or even 40°. Cold air moving over the body is a cooling agent of great power, second only to the direct application of cold to the surface in the form of ice or the cold pack; nor is there danger of bad results if the movement of the air is not too great. Even in acute lung diseases this is the case. Pneumonia cases do best in cold rooms, provided there is no great current of air over the patient. On the other hand chronic heart disease with lung congestion and diseases of this class require a warm air with considerable moisture. In inflammatory affections of the throat, larynx, trachia and bronchial tubes a warm air is best.

In convalescence, or during the period of recovery from illness, cold is very badly borne; the bodily powers of resistance are much reduced and the air should be kept warm, and sudden changes of temperature especially avoided.

Different Kinds of Warmth—Radiant heat is the best means of warming. This is the manner in which the heat of the sun reaches us. It heats the body without warming the air, and there is no possibility of adding impurity to the air. Radiant heat is obtained from grates and fireplaces, and in very cold climates it is so feeble in power and expensive in its production as to be impracticable.

Convection and Conduction of Heat—This method of warming consists of heating air in a confined space surrounding a fire, or through which hot steam pipes pass. The heated air is then led to the different parts of the building by ducts or pipes. There are several points to be noted in this method of warming. The point of entrance into the room should be at or near the floor, so that the heated air shall properly mingle with the air

already there. The air should not be too hot, not above 75° to 80° F., and a large volume of gently heated air should be preferred to a small volume of very hot air, as the former is more likely to mix thoroughly with the air of the room. The air after heating should be passed over the surface of a body of water in order that it may not be too dry when discharged into the room. In all cases a reliable thermometer should be employed to regulate the temperature. The thermometer should be so placed as to record as nearly as possible the average temperature of the room. If possible it should be suspended about the center of the room, as from a gas fixture, or it may be hung upon the inner partition wall. The thermometer should never be hung upon the outside wall of a room, or near a window, around which may enter currents of cold air from the outside, thus causing great error in the reading of the thermometer; nor should it be so placed that the currents of warm air from furnace pipe or stove or the radiant heat of a grate or fireplace shall strike upon it, and thus raise its reading far above the average temperature of the room. Whatever be the means of warming, the temperature should be kept at a regular, even degree, both as a matter of preserving health and for the sake of economy, for a heating apparatus if kept at an even heat requires far less fuel than if the fire is allowed to die out or become very low, necessitating the addition of large quantities of fuel and the reheating of a large volume of air in the rooms which has become chilled.

PHYSIOLOGY OF DIGESTION.

That portion of the body which has to do with the digestion and absorption of food is called the alimentary canal. It consists of the mouth, the oesophagus, the stomach, the small intestine and the large intestine. These various organs are lined throughout with mucous membrane, which has certain general characteristics in common, but which differs essentially in certain particulars in each portion of the digestive tract. This difference in mucous membrane lies chiefly in the character of the glandular structures which are found in the different locations. The food in passing along the alimentary canal is acted upon by cer-

tain juices, which are the product of the glands belonging to the mucous membrane. These juices are saliva, gastric juice, bile, pancreatic juice and the juices secreted by the glands in the intestines. These juices are poured upon and mingled with the food, and produce in it such changes that, from being largely insoluble, it becomes largely soluble, or otherwise modified in such a manner that the larger part of what is eaten passes into the blood, while the smaller part is discharged as excrement.

The digestive juices, coming from all of these glands which have been described, are derived from the blood and the process of their manufacture in the gland is under the direct control of the nervous system, as is also the circulation of the blood to and within the glands; hence we see the great importance of perfection in the nervous mechanism governing these delicate structures. Furthermore it can be readily seen how many and how varied may be the causes of imperfect digestion and dyspepsia.

In order that we may have a clear understanding of digestion it will be necessary to study: First, the properties of the various juices and the changes which they bring about in the food eaten; second, the mechanisms, which are chiefly muscular, by which the food is passed along the canal, and most efficiently brought in contact with the successive juices; third, the means by which the nutritious digested material is separated from the undigested or excremental material and absorbed into the blood.

Saliva—The saliva is a compound secretion, being the product of four distinct sets of glands. Three of these exist in pairs, and are named respectively the parotid, submaxillary and sublingual. The fourth set consists of simple mucous glands, which are very numerous in the mucous membrane of the mouth. Saliva, in a healthy subject and when secreted freely, is alkaline in its chemical reaction; but when the amount is scanty or when the subject suffers from dyspepsia the reaction is or may be acid. The chief purpose of the saliva in digestion is to moisten the food and to assist in mastication and swallowing. In some animals this is its only function. In other animals and in man it has a specific, solvent action on some of the food stuffs. On fats it has no effect, and the same is true of proteids, or the nitrogenous elements of the food. Its characteristic property is that of con-

verting starch into sugar. The conversion of starch into sugar will go on at the ordinary temperature of the atmosphere, but excessive cold retards and finally stops the action; increase of temperature, up to 90° or 100° F., favors the action of the saliva. In other words the saliva acts best at or near the normal body temperature. So also the action of the saliva is favored by a slight alkalinity of the medium in which it is contained, but the presence of an excess of acid checks or altogether stops its action. The action of the saliva is also hampered by an excess of its own product, that is, sugar.

The action of saliva depends upon and is produced by one of a class of substances which are called ferments. The particular ferment found in saliva is called ptyalin.

Gastric Juice—This juice is secreted by the glands which are distributed throughout the mucous membrane lining the stomach. The gastric juice is acid in reaction and contains a ferment called pepsin, which is the active agent in the changes produced by the gastric juice in the food. The gastric juice has no effect whatever upon starch; fats also are not effected by gastric juice, but when fatty substances are eaten and reach the stomach the tissue envelopes of the fat cells are dissolved and the fats are set free; the fat itself undergoes no change.

The essential property of gastric juice is the power to dissolve proteid matters and convert them into a form in which they are readily taken up by the blood.* The action of the gastric juice depends not so much upon the quantity of the juice as it does upon the time in which the juice is given to act. In other words the gastric juice in the stomach will change a very large amount

*Note—All substances which are suitable for food are found to contain substances which belong to three large classes of chemical materials, viz., proteids, carbohydrates and fats. By proteids are meant substances containing carbon, oxygen, hydrogen and nitrogen in a certain proportion, varying within narrow limits and having certain general features. They are frequently called albuminoids. Muscle tissue, lean meat, the albuminous portion of eggs, and the nitrogenous portion of cereals are all examples of proteids. By carbohydrates are meant starches and sugars and their allies.

of proteids if they are slowly introduced into the stomach in a finely divided state, that is, well masticated. Furthermore, the proper action of the gastric juice depends largely upon there being the proper amount of hydrochloric acid present in the juice. The entire absence of acid or an excess both prevent absolutely the action of the juice, and a very slight variation either way from the normal results in imperfect digestion of proteids with all the distressing symptoms of dyspepsia, which we see may be caused either by a deficiency or an excess of acid. Temperature, also, has a marked effect on the action of the gastric juice, the normal bodily temperature being best adapted for its action, and any marked departure in either direction from about the normal bodily temperature interferes with perfect digestion. Drinking considerable quantities of ice water during or immediately after eating tends to check the action of the gastric juice upon proteids and causes indigestion and dyspepsia.

Bile—The bile is the digestive juice which is secreted by the liver, the largest gland in the body. The quality of the bile varies much, not only in different persons, but in the same person at different times. It is, moreover, affected by the length of time it remains in the gall bladder. The color of bile in man and in carnivorous and omnivorous animals is a bright golden red; in herbivorous animals a golden green or a bright green, or a dirty green, according to circumstances, being much affected by the length of time it remains in the gall bladder. The reaction is alkaline. Bile has but a slight soluble action upon the constituents of the food. In some animals the bile has a limited power of converting starch into sugar; on proteids it has no direct digestive power whatever, and on fats its solvent action is but slight, if any. The chief function of the bile is in its action upon the absorbing functions of the digestive organs, to stimulate them to greater activity and to act upon the membranous walls of the blood vessels in such a manner that the digested portions of the food are taken up more rapidly.

Pancreatic Juice—The pancreatic juice is secreted by the pancreas, a gland lying upon the left side of the abdomen below the stomach. Its action upon food is such that starch is rapidly converted into sugar. All that was said of the action of saliva

may be repeated in the case of pancreatic juice, except that the activity of the latter is far greater than that of the former. The pancreatic juice also possesses the power of acting on all food stuffs, starch, fats and proteids, and is one of the most important of all the digestive juices.

Muscular Mechanism of Digestion—From its entrance into the mouth until such remnant of it as is undigested leaves the body the food is continually subjected to movements, having for their object the trituration of the food as in mastication or its more complete mixture with the digestive juices or its forward progress through the alimentary canal.

Mastication—This is the process of chewing or grinding the food between the teeth, the object being to divide the food into very small particles so that a larger surface may be exposed to the action of the digestive juices. The importance of thorough mastication cannot be overestimated, and sound teeth properly made use of have a much more important influence upon the health of the individual, than is generally supposed. Many cases of dyspepsia are due to the lack of proper mastication of the food. The action of the jaws in mastication also stimulates the flow of saliva and that portion of the digestive function is thereby rendered more perfect.

Deglutition or Swallowing—This is a muscular process which is partly voluntary and partly involuntary. When the food is masticated it is gathered into a ball by the tongue and carried back to the opening into the throat; the soft palate rises and the epiglottis or cover of the windpipe automatically folds downward and shuts off the larynx. Then by a wave-like contraction of the muscles of the throat, passing from the upper portion downward, the ball of food is caught in the grip of the muscles and carried downward toward the stomach. This wave-like contraction continues throughout the muscular fibers located in the walls of the oesophagus, until the food finally passes the oesophagus and is discharged into the stomach.

Movements of the Stomach—The walls of the stomach are supplied with muscular layers so arranged that by their alternate relaxation and contraction a rolling motion is given to the contents of the stomach, and the particles of food and the gastric juice

are thus more thoroughly mixed together, and are finally forced out of the stomach into the small intestine.

Movements of the Intestines—In the walls of the intestines we find a layer of muscle fibers arranged in a circular manner, so that their contraction narrows the opening of the intestine, and as these contractions begin at the upper portion of the intestine and pass downward in a wave-like manner the contents of the bowels are carried along and finally discharged from the body. This is called peristaltic action. The importance of perfect peristaltic action in the bowels cannot be overestimated, for by this means only is the removal of undigested excreta effected. Most cases of chronic constipation are due to deficient peristaltic action of the bowels, and in their treatment call, not for cathartics, but for those remedies which have the property of stimulating the muscular fibers in the bowel wall to proper action.

Vomiting—This act is preceded by a feeling of nausea; this is followed by retching, in which a considerable quantity of air is swallowed, which assists in dilating the lower portion of the oesophagus. There is then a violent and sudden contraction of the abdominal walls, so that the stomach is compressed from without and the contents are expelled through the mouth. During vomiting the opening of the stomach into the small intestine is generally closed so that but little material escapes into the bowels. When the gall bladder is full a large flow of bile passes into the bowels during the act of vomiting. Part of this may find its way into the stomach, as is seen in bilious vomiting.

Absorption of the Products of Digestion—We have now traced the process of digestion through the various processes by which the food which is eaten is altered and made fit for absorption and to be taken up by the blood and carried to the various parts of the body, where it is required for repair of the tissues which have been changed by the development of energy.

The process by which the food, after preparation, passes from the alimentary canal into the circulation is called absorption, and in order that the process may be understood, it will be necessary to explain a principle in physics upon which absorption depends. If a vessel be divided into two compartments by stretching across it a partition made from some thin animal membrane,

such for instance as a section of a pig's stomach, and a solution of some inorganic material, such as salt, placed in one compartment and the other compartment filled with pure water, it will be found after a time that the pure water has become equally salty with the salty solution first placed in the vessel, and analysis will show that the salty solution has been diminished in strength. In other words the salt has passed through the membrane from one side to the other until the two solutions have become equalized. This process is called diffusion by dialysis, and the perfection of absorption of digested foods depends upon the perfect diffusibility of the material. Furthermore, in the body we find, in addition to the blood vessels, and intimately associated with them, a second set of vessels or channels for the passage of fluids. This second circulatory system is called the lymphatic system, and in these vessels circulates the lymph, which is the fluid of the blood, from which the red corpuscles and the fibrin have been removed. There is a constant and rapid interchange of fluid between the lymph channels and the blood vessels, and the lymph or fluid as it leaves the blood carries in it in solution the nourishment for the tissues, which is carried through the lymph vessels to the points where it is required and there deposited, the lymph then returning to the blood vessels for a fresh supply.

The greater portion of the digested food, when taken up by the blood, is still in an unprepared condition and needs further change and modification before being taken to the tissues. This change is chiefly accomplished in the liver, which we may rightly consider the great chemical laboratory of the body. The fats which we eat almost all pass directly to the liver for their final preparation, and a diet containing an excess of fats is liable to throw more work upon the liver than it is capable of performing. Thus the liver becomes over worked, the changes are imperfectly performed, the organ becomes sluggish, and a bilious attack results. The proteids and starch and sugar are much more soluble, and in more proper form for immediate use by the tissues than the fats, and but a small quantity of these materials pass to the liver, by far the greater quantity entering directly into the blood and the general circulation.

FOOD.

In the widest, broadest sense of the term food, we mean everything taken into the body, which goes directly or indirectly to the growth or repair of the body or to the production of energy in any form. It is necessary, however, in this discussion, to exclude not only water and air, which have been considered under special heads, but also generally, medicines and poisons, which on the one hand either act, or are intended to act, upon the processes of unhealthy nutrition, or on the other hand prevent healthy nutrition, and so induce unhealthy nutrition and ultimate death. This line of distinction, however, cannot be drawn too strictly, for in many cases it is more a question of quantity than of kind that determines the method of action.

As a basis of classification of foods necessary to maintain human life in its most perfect state, milk may be considered to contain all the necessary elements in the best form. The substances in milk are, first, the nitrogenous matters, viz., the casein principally, also albumin, lacto-peptin and other proteids; second, fat and oil; third, sugar; fourth, water, and salts of various minerals.

Careful analysis of all food substances shows that their value as a food depends upon the presence in their composition of one or more of these substances named above, and their relative food value depends upon both the percentage of the food elements present and the facility with which the digestive function is enabled to separate them from their compounds with other materials of non-food value.

Digestibility of Food—In order that food may be digested and absorbed two conditions are necessary—the food must be in a fit state to be digested, and it must meet in the alimentary canal with such chemical and physical conditions as will permit of its digestion and absorption. Fitness for digestibility depends partly on the original nature of the substance, as to hardness and cohesion, or chemical nature, and partly in the manner in which it can be altered by cooking. At the end of this chapter will be found a table giving the degree of digestibility of the principal foods, together with the manner of cooking to secure the best results.

Rice, tripe, whipped eggs, sago, tapioca, boiled milk, raw eggs, lamb, parsnips, roasted and baked potatoes and fricasseed chicken are the most easily digested substances in the order here given, the rice disappearing from the stomach in one hour and the fricasseed chicken in two and three-fourths hours. Beef, pork, mutton, oysters, butter, bread, veal, boiled and roasted fowls are rather less digestible, roast beef disappearing from the stomach in three hours, and roast fowl in four hours. Salt beef and pork disappear in four and one-fourth hours. As a rule animal food is digested sooner than farinaceous, and in proportion to its minuteness of division and tenderness of fiber. The admixture of foods of different classes aids digestibility; thus fat taken with meat aids the digestion of the meat. Some of the accessory foods probably increase the outpour of saliva, intestinal secretion and gastric juice.

The degree of fineness and division of the food, the amount of solidity and of trituration, which should be left to the teeth, in order that the fluids of the mouth and salivary glands may flow out in due proportion, the bulk of the food which should be taken at once, are points seemingly slight, but of real importance. There is another matter which appears to affect digestibility, viz., variety of food.

According to the best writers on diet it is not enough to give the dietic substances in proper amount. Variety must be introduced into the food, and different substances of the same class must be alternately employed. It may appear singular that this should be necessary, and certainly many men and most animals have perfect health on a very uniform diet. Yet there appears no doubt of the good effects of variety and its good effect on digestion. Sameness cloyes, and with variety more food is taken and a larger amount of nourishment is introduced. Where variety of substances cannot be obtained much can be done to relieve the monotony by having a variety in the manner of cooking. In the case of children particularly a great improvement in health takes place when a variety in cooking is introduced.

The abundance and condition of the digestive juices and action of the muscular fibers in moving the food, so that it shall be brought thoroughly in contact with them, depend upon the perfection of the nervous currents, the vigor of the circulation

and the composition of the blood. Many of the digestive diseases the physician has to treat depend on alterations in these conditions, so that the food is only imperfectly digested. In such cases benefit can often be obtained by artificial digestion of the food before it is taken into the alimentary canal, this process relieving the diseased and disordered digestion of a larger part of its work.

Diseases Connected with Food—No other single element in daily life has so great an influence upon health as the food taken into the body, and the diseases depending upon food form the largest number of any arising from a single class of causes. These diseases may be produced by alterations in quantity, either excess or deficiency, by imperfect conditions of digestibility and by special characters of quality.

Excess of Food—Where food is taken in such quantities that it cannot be absorbed, it undergoes chemical changes, and at last putrifies and large quantities of gas are formed. Then dyspepsia, constipation and a diarrhea which does not empty the bowels follow. Often some of the putrid substances are absorbed, and evidences of poisoning of the blood are seen, accompanied by fever, torpor and heaviness, foul breath, and even jaundice. It is this condition which has led to the almost universal giving of purgatives, which give relief, but a repetition of the cause produces the same results. The relief, however, should not be obtained so much through the use of purgatives as by the regulation of the diet, and by avoiding overloading of the system with food. Temperance means not only moderation in drinking, but moderation in eating as well.

Of the different classes of food the proteid class is the most easily digested and can be absorbed in the largest quantity, especially if it be taken into the system in small amounts, frequently repeated. Starch is much less capable of absorption by the system and after an excess of starchy foods much unchanged starch passes from the system. This is also true of fats. Habit, however, has much influence upon the digestion, and a certain diet long persisted in has the effect of producing an increased amount of the digestive juices, which act upon the food constituents which are in excess. Where an excess of proteids con-

tinually pass into the system the liver is found to be congested and enlarged; other organs are altered and a general state of plethora and sluggishness is induced. This condition is made worse if, at the same time, there is a lack of exercise, in which case less oxygen is taken into the system and the normal reduction of these substances into waste material is not complete. Partially oxidized material is retained in the system or else it produces irritation in the organs of elimination, such as the kidneys, lungs and skin, through which it passes. For an example, a general rash or skin eruption follows an improper diet in nearly every case. Gout is also a disease which is dependent upon an excess of proteids in the form of meat or the use of certain liquids which, by their action, retard the digestion and absorption of the proteids and hence produce the same effect. The effects of excess of meat in a diet are largely influenced by the habits of the individual. One taking active outdoor exercise or performing manual labor in the open air can absorb without detriment a large excess of proteid foods, as may be seen in the case of the frontiersman, whose diet usually consists almost entirely of meat. The student or the indoor worker, sitting hour after hour in one position, should eat sparingly of meat.

An excess of starches and fats delays the normal changes occurring in the tissues of the body and tends to produce an excess of fat. Sour stomach and flatulence or wind in the stomach and bowels are produced by the incomplete conversion of the starch into sugar, which is followed by fermentation and the production of gas. In excessive use of starch and fat in the diet we find a tendency to fatty degeneration of the muscular tissue throughout the body. Where the muscles of the heart undergo this change enfeebled heart action follows, with a general lowering of the vital forces. Where an excess of starch is taken much of it passes from the bowels unchanged and the urine will also be found to contain sugar.

There may also be an excess of food in a given time, that is, meals too frequently repeated, though the absolute quantity in twenty-four hours may not be too great.

Deficiency of Food—It is not necessary here to speak of the long catalogue of diseases produced by famine. Disease, however, may be produced by a deficiency of one or more of the four great

classes of food elements, when the other constituents are in a normal amount. This is a subject about which much has yet to be learned. The following general statements, however, have been thoroughly proved:

Complete deprivation of proteids, without lessening of the other classes, produces marked effects only after some days—from five to seven. If the deprivation be continued there is eventually loss of mental and muscular strength, with some fever and symptoms of dyspepsia. This condition is followed by anemia and great prostration. If starch be largely supplied the weight of the body does not lessen for seven or eight days. If the proteids be only partially removed from the diet the vital forces are slowly diminished, and the system becomes much more susceptible to the influences of disease, less able to adapt itself to circumstances, the influences of malaria, typhoid fever and pneumonia are more profound and more apt to attack the weakened vital forces. The removal of starch from the diet can be borne for a long time if fat be supplied, but if starch and fat both are excluded, though a normal amount of proteids be given, illness soon occurs. This is especially true unless very severe exercise is practiced, and even then the effects are only delayed. The removal of fat from the diet is not well borne even if starch be supplied. The exact manner in which fat acts upon the nutrition of the body is not known, but we do know that in many cases of faulty nutrition the greatest benefit is derived by the administration of fats in various forms, as for example the giving of cod liver oil in the case of chronic bronchitis or early consumption where there is a rapid loss of weight and strength.

Bad effects are also produced by too long an interval between meals. There are great individual differences in this respect, however, and much depends upon habit. It may be said here that one of the most important points regarding diet is regularity in the time of taking food. Nothing will have greater influence upon the production of dyspepsia and disorders of the digestion, in both children and adults than the habit of irregular eating. Children should never be allowed to lunch between the regular hours for meals.

Conditions of Digestibility and Assimilation.—A large number of diseases are produced not by alterations in the quantity or

defects in the quality of the food, but by reason of its indigestibility, caused either by its physical or chemical condition or by an altered state of the digestive juices. To some persons certain foods are indigestible at all times, or only at certain times, depending upon the condition of the digestive juices at that particular time. Indigestibility leads to retention of the undigested mass in the stomach and bowels and is followed by chemical changes and putrefaction under the influence of warmth and moisture. Then irritation is produced and dyspepsia, diarrhea or dysentery is caused. Indigestibility goes further than this, however, for when the food is imperfectly prepared for absorption some, at least, of the proteids pass into the circulation unfit for assimilation and produce irritation in the liver, kidneys and skin. Sometimes albumin appears in the urine, as if it were a foreign substance in the blood circulating through the body. Such conditions are usually associated with some evident error in the digestion, but occasionally no evident gastric disorder can be found.

Conditions of Quality of Food—Altered quality, of what is otherwise good food, produces a great number of diseases. The alterations occur either during storage, such as chemical changes and partial decomposition, an example of which is the souring of milk, or are produced during preparation or cooking of the food. This subject will be considered more at length under the discussion of individual articles of food.

DISCUSSION OF INDIVIDUAL ARTICLES OF FOOD.

Meat—The advantages of meat in a diet are that it contains a large amount of nitrogenous substances and important mineral substances, such as chlorides, phosphates and the salts of iron. Meat is also easily cooked and very digestible, and is more easily assimilated than any vegetable.

How to Detect Bad Meat—There should be sufficient but not too much fat present. The fat should be firm, healthy looking, not like jelly, or too yellow, and there should be no sign of blood at any point in the fat. The color of fat varies from white to straw and yellow. Beef fat should be more yellow than pig fat, which latter should be almost pure white. The muscular tissue of the meat should be firm and yet elastic, not tough; the pale

moist muscle indicates a young animal, the dark colored muscle an old one. A dark purple tint is said to indicate that the animal has not been slaughtered, but that it died with blood in it. When good meat is placed upon a white plate a little reddish juice often flows from it for several hours. Meat should, however, become tolerably dry after being exposed to the atmosphere for some hours. It should have a pleasant sweet flavor, and when heated should give a savory odor. Good meat has a marbled appearance, caused by the distribution of thin layers of fat between the muscle layers. When cut across, the meat should present the same general condition throughout the mass. There should be no discolored areas nor softened spots. The muscular tissue becomes soft and tears easily when putrefication is beginning.

The degree of freshness of meat is judged of by the color, (when putrefication is beginning the meat becomes paler); by the odor which early becomes different from the not unpleasant odor of fresh meat; and by the consistence of the meat, which soon begins to soften under putriferative changes. As putrefaction advances these signs become more marked; the disagreeable odor increases, and the meat begins to have a greenish color. The odor becomes more apparent when the meat is chopped up and drenched with warm water. Diseased conditions or putriferative changes can often be detected in the central portions of a piece of meat by pushing a clean knife entirely through the mass. The knife should meet with the same resistance throughout and should have no smell of putrefaction on withdrawal. Salt meats are much harder to judge than fresh, and putriferative changes are often undetected until the meat is cooked.

Meat often produces disease by changes which occur after cooking. These changes are probably of the nature of fermentation, or the primary stage of putrefaction, in which certain chemical poisons are developed. The chemical poisons are called ptomaines. They are especially liable to develop in meats which have been cooked and then allowed to stand one to three days before using. Warm or hot weather favor their development, but they also develop in sufficient quantity to cause serious or even fatal illness in cold weather. In all cases where meat is in any way suspicious it should be at once destroyed, as while thorough cooking may render the poison innocuous, it is not certain that the chemical poisons are entirely eliminated.

Methods of Cooking Meat—In all cases there is one grand rule—cook meat slowly, with little heat, and, as far as possible, let the loss in weight be water only.

Boiling—In boiling, meat loses from twenty to thirty per cent of its weight. The meat should be in a large piece, and is first placed for five minutes in boiling water, after that the heat can be low, and should continue until the meat is tender throughout. If too great a heat is used the meat is hard and shrunken. If it is desired to make good broth the meat should be cut into small pieces and put into cold water and gradually warmed up to a little below the boiling point—about 150° to 175° F. Beef makes the weakest broth; mutton is a little stronger, and chicken makes the strongest broth of all. Broth made without heat, by adding four drops of hydrochloric acid to a pint of water and half a pound of beef is very rich in soluble albumin. If a little more hydrochloric acid be added and the broth then gently warmed for an hour nearly one-half the meat can be obtained in the broth.

Roasting—The loss in roasting is from twenty to thirty-five per cent. This loss is chiefly water, the other constituents remaining the same. The roasting should be slowly done. To obtain the juices the meat must be first subjected to intense heat, and afterwards cooked very slowly. There are chemical changes induced by the heat which form aromatic products, to which the pleasant odor of roasting meat is due. The fat melts and flows out with the gelatin and extracts and forms the gravy. The melted fat and juices should be frequently dipped up and poured over the meat during the roasting process.

Baking—The loss in baking is the same or a little less than in roasting.

Stewing—Stewing is virtually the same as roasting, only the meat is cut up and placed in enough water to cover it. Like boiling and roasting it should be done slowly and at a low heat. The loss in weight is then about twenty per cent and is chiefly water evaporated.

Fish—Fish as an article of diet is of great nutritive value. It is less satisfying and not so stimulating as the flesh of animals, but is easily digested, and in many parts of the world whole communities subsist on it. The lowered vitality, however, of these

communities would seem to indicate that fish alone should not be the source from which nitrogenous food is drawn. Fish contains a large proportion of phosphorous, which makes it a suitable diet for those who have to perform much brain work, and for this class, which generally takes but little exercise, it has the further advantage of being easily digested.

The flavor and digestibility of fish depend upon the amount of fat it contains, which varies in different species, white fish having the least amount of oil, and salmon and the eel the largest. Fish are preserved for use by smoking, drying, salting and by the use of oil. When salted they should be thoroughly soaked in water before used, as this will render them more palatable. Codfish is not easy of digestion; it is often hard and tough. When in season curdy matter is often found between the flakes after boiling. The roe of fish is a greatly esteemed delicacy. The hard roe is the ova of the female fish, the soft roe or milt is the spermatie organ of the male. Caviare is the salted hard roe of the sturgeon. Codfish is very liable to be infested by parasites, no less than ten species being found in it. It is necessary, therefore, before eating this fish that it should be thoroughly cooked; boiling or baking will effectually kill any known parasite. The flesh of apparently healthy fish may produce poisonous symptoms. This is especially true of certain kinds of fish from tropical waters. There is no indication that the fish is diseased or that its flesh has or is undergoing decomposition, yet it produces violent symptoms of two kinds—gastro-intestinal irritation and severe nervous symptoms, with great depression. Fish are less liable to cause irritation when eaten fresh, and should be eaten the earliest moment possible after capture.

Oysters and shellfish, even when in season, produce poisonous symptoms at times, especially in certain persons who suffer from peculiarities which render them more susceptible. When decomposing, oysters and shellfish act as violent irritant poisons.

Mussels, and especially those taken from stagnant water to which sewage gains access, at times are very violent poisons.

Wheat—Wheat is poor in water and rich in solids, therefore very nutritious in small bulk, and when the two outer coats are removed the whole grain is digestible. The nitrogenous

substances consist of soluble albumen one to two per cent and gluten eight to twelve per cent. The amount of starch is large, sixty to seventy per cent, and easily digested. Phosphates of potash and magnesia are also found. Wheat is, however, deficient in fat and vegetable salts, which are required in the system. As usually prepared the grain is separated into flour and bran; about eighty parts flour, sixteen parts bran and four parts loss. The flour is divided in three classes: best, middlings and bran flour. The wheat of commerce is named from its color or consistence, hard or soft, white or red. The hard wheat contains less water, less starch and more gluten than the soft wheat.

Flour—Almost all the bran is separated from the finest flour, but it is a question whether this is desirable, since the bran contains large amounts of nitrogenous matter, fats and salts of minerals. Bran, however, is very indigestible, and if taken into the stomach in large amounts it loads that organ with indigestible material from which but little nourishment can be extracted. The undigested mass also acts as an irritant, and in weak and irritable digestive tracts frequently starts persistent diarrhea. The bran, however, consists of four or five layers, and in some milling processes the outer three or four layers are removed, leaving only the inner tender layer, which is fairly easy of digestion. Wheat flour made in this manner, constitutes the best flour for the making of bread. If the whole wheat is used it should be ground very fine, so that the harder envelopes shall offer the least possible resistance to the digestive juices, and produce the least possible irritation. Whole wheat flour should never be used for making bread for invalids or sick persons. Children with a tendency to bowel complaints should never be given the ordinary so-called "graham" bread in their diet. This is a very important point, since it has become the fashion in some "health rules" to recommend whole meal bread. It is true that well made whole meal bread contains more nourishment than that made from finely sifted flour, such as is now generally used. The bran carries most if not all of the fats and mineral salts in the wheat grain, and these constituents are lost in the removal of the bran, whole meal showing upon analysis a marked excess of these over the best white flour. There is also a certain loss in nitrogenous matter, which is believed to aid digestion. Were

it not for the irritation which the bran produces upon a tender and irritable digestive tract the whole meal would be much preferred for its nutrient value. Modern improvements in milling processes have, however, done much and will do more to eliminate this objection, and when this can be completely remedied whole wheat flour will constitute the best material from which bread will be made.

Adulterations of Wheat Flour—As a rule there is but little adulteration of wheat flour, since the price of good wheat has reached a level at which adulterations are not particularly profitable, but with rising prices the case might be different. The chief adulterations are by the admixture of other cheaper flours, such as that of barley, potato, beans, peas, corn, oats, rye, rice, buckwheat, millet and linseed. All of these are easily recognized under the microscope. Mineral substances such as alum, gypsum, clay, powdered flint and calcium and magnesium carbonate may also sometimes be used for adulterations. These are best detected by a chemical examination.

Cooking of Flour—The effect of heat is to coagulate the albumen and to transform some of the starch into sugar.

Cakes—Flour, water and salt made into paste or dough without fermentation and cooked with low heat form a palatable food and this method of preparing flour for digestion is an easy one.

Macaroni—This is made from flour of a hard Italian wheat, rich in gluten. The flour is moistened with water and pressed through a number of small openings, while at the same time heat is applied. It is very nutritious in small bulk and keeps well.

Crackers or Biscuit—Crackers are usually made from flour with little or no bran, and generally no salt is added. The simplest crackers are merely flour and water, but some are made with milk, eggs, etc. Crackers should be well baked but not burnt. Crackers contain little water, and bulk for bulk are more nutritious than bread. Three-fourths of a pound of crackers is equal to one pound of bread. Bread is deficient in fat, and in some instances is difficult of digestion.

Bread—The process of baking renders bread more digestible than flour. It can be used regularly as an article of diet without

the system becoming tired of it, although it may be always made in the same way. This, probably, is due to the great variety of its components. Bread is, however, poor in fats and salts of minerals, hence the common practice of using some form of fat with it, such as butter or bacon fat.

There are several methods of making bread, differing in the manner in which carbon dioxide gas is introduced into the dough mass. The common household method is by fermentation, produced by the addition of yeast to the dough. The gas is produced by the fermentation and permeates the mass of dough, dividing it into a large number of little cavities, and whenever we have this divided condition of the dough we have bread. This method of fermentation by yeast is a very satisfactory method provided the yeast be good. When the yeast is bad the fermentation changes go on in the stomach after the bread is eaten, a large quantity of carbon dioxide gas is freed and dyspepsia, flatulence and unpleasant sensations, such as heartburn, are produced.

Mechanically aerated bread is made by forcing carbon dioxide gas through the dough by pressure. The gas is prepared by the addition of sulphuric acid to chalk. The bread made in this way does not undergo fermentation and it is impossible for the conversion of starch into sugar and lactic acid to go too far.

Bread may be of bad color (rather yellowish) from old flour, from grown flour, in which case the changes in the starch have generally gone on to a considerable extent, and the bread contains more sugar than usual and does not rise well, and from bad yeast. Bread may be acid or sour, from bad flour giving rise to an excess of lactic acid or from bad yeast. Bread is heavy and sodden from bad yeast fermenting too rapidly, or when the fermentation has not taken place (cold weather, bad water or some other cause will sometimes hinder it) or when the wheat from which the flour is made is grown, or when too little or too much heat has been employed. Bread is bitter from bitter yeast. Bread becomes rapidly mouldy when it contains an excess of water. Alum added to the dough stops fermentation, and also whitens the bread, does not increase the water, and enables bread to be made from flour that could not be otherwise used. Sulphates of copper and zinc in very small quantities are some-

times employed for the same purpose. These are adulterations and their use is not recommended.

Biscuit—The biscuit is made by the addition of baking powder to the dough mass, the carbon dioxide necessary to make the biscuit light being given off by the chemical decomposition of the baking powder, which is a compound of some acid, such as hydrochloric, tartaric, phosphoric or citric, with sodium or ammonium carbonate. This method of preparation furnishes a wholesome and palatable bread.

Barley—As an article of diet barley has the same advantages and disadvantages as wheat. It is said to be rather laxative and should be avoided where the stomach and bowels are weak and irritable, or where there is a tendency to dysentery. Barley is particularly rich in phosphoric acid and iron. The diseases arising from use of barley under conditions of altered quality are those of wheat under similar conditions, viz., indigestion, flatulence and diarrhea.

Oats—Oats are considered to be even more nutritious than wheat or barley and to contain larger proportions of both nitrogenous matters and fat. The nitrogenous matters, however, have no adhesive property, and bread cannot be made of it. The amount of indigestible cellulose is large. On the other hand oatmeal has the great advantage of being easily cooked—much more so than wheat or barley. In its nutrient properties oatmeal stands nearer to beans and peas than do other cereals. Oatmeal should be thoroughly cooked. It is best prepared by placing the meal in a small quantity of water and cooking by steaming. Made into thin gruel it forms an exceedingly nourishing and healthful drink.

Corn and Rye—Both corn and rye are very nutritious grains. Corn contains a large amount of fat, 6 or 7 per cent. It requires very careful cooking, as otherwise much of it passes through the body undigested, and often causes diarrhea. Corn in the shape of hominy should be thoroughly soaked in water from two to four hours and then thoroughly boiled for from four to six hours at a rather low heat. Corn cakes are especially palatable and nutritious. Corn flour is prepared by treating the meal with a weak

solution of caustic soda. This removes the greater part of the fat and nitrogenous matter, making it more palatable but less nutritious.

Rye makes a very dark, acid bread which causes diarrhea in those not accustomed to its use. One soon becomes accustomed to the bread, however, and as far as nutritive value goes, rye appears to be about equal to wheat.

Rice—Rice consists of the whole grain after the husk has been removed. As an article of diet it furnishes an extremely digestible form of starch, and there is a great admixture of different food stuffs in the grain. It is poorer in nitrogenous matters than wheat and contains much less fat.

Cooking of Rice—Rice should be steamed, not boiled, and the steaming should be thoroughly done, in order that the rice grains shall be swollen and digestible. If boiled at all it should not be for too long a time, else the albuminous matters are extracted and the rice loses in nutritive power.

Buckwheat—Buckwheat is poor in nitrogenous substances and fat and contains a large amount of indigestible cellulose. It makes fairly palatable cakes, but their long continued use results in indigestion, as shown by the frequent skin eruptions or rash which is seen in those people who consume large amounts of buckwheat.

Peas and Beans—Peas and beans, as representatives of the class of foods known as leguminosæ, differ from other vegetables in the very large amount of nitrogenous substance called legumin or vegetable casein, which they contain. They also contain a small amount of albumin and other proteid bodies. The advantages of peas and beans as articles of diet are the great amount of legumin and the existence of much sulphur and phosphorus in combination with the legumin. The disadvantage of peas and beans is that they are to a considerable extent indigestible. Much hydrogen sulphide gas is formed by the chemical changes occurring in the legumin, producing flatulence or wind in the intestines. Peas and beans, on the whole, are very valuable articles of diet, especially when added to the meat and bread diet of persons taking much exercise.

Cooking of Peas and Beans—They must be boiled slowly and for a long time, otherwise they are very indigestible. If old no amount of boiling will soften them properly. They should be soaked in cold water for twelve to twenty-four hours, then crushed and stewed. In this way they can be made both palatable and digestible. Peas and beans should not be boiled in hard water or water containing chalk, as the lime forms insoluble compounds with the legumin. This rule should be generally observed in the cooking of all vegetables.

Starches—Under the class of foods called starches come those whose chief food value depends upon the large amount of starch which they contain. The chief representatives of this class are arrowroots of various kinds; tapioca, obtained from the cassava plant; sago, which is obtained from the sago palm. All of the starch class form a valuable, light and easily digested food when not taken in excess. They should be thoroughly cooked; the best method is by boiling at a low heat.

Sugar—Sugar should be more or less white, crystalline, not feel moist to the touch, and should entirely dissolve in water. The whiter the sugar the less is the percentage of water which it contains.

Succulent Vegetables—Almost all other vegetables (except potatoes) are used not so much on account of nutritive qualities as for the mineral salts which they contain. Some of them also contain peculiar oils, such as occur in the onion, which act as condiments.

Potatoes—Potatoes contain only a small amount of nitrogenous matter and but little fat and mineral salts, but they contain a large amount of very easily digested starch and a large quantity of vegetable acids and their salts. The juice of the potato is acid and there is no better vegetable for constant use than the potato. The sweet potato and the yam are similar to the ordinary potato and are much relished as a change. To some individuals, however, they are very indigestible.

Cooking of Potatoes—Potatoes are best cooked in their skins, either boiled or baked, otherwise a large amount of the salts pass off. When boiled in salt water nearly all of the mineral and

vegetable salts in the potato are retained. The boiling should be slow at low temperature. Steaming is a better method of cooking.

Milk—Milk contains all of the different classes of food which are essential to health, being especially intended for feeding during growth. The proportions of nitrogenous substances and fat, as compared to sugar, are large. Milk varies greatly in its composition, not only in the different breeds of cows from which the milk is taken, but also according to the manner in which and the substances upon which the cow is fed. Some breeds of cows, such as the Alderney and Jersey, give milk which contains a very large percentage of fat, while the milk from other breeds, such as the Shorthorn, contains a large proportion of casein. Koumiss is mare's milk which has been subjected to partial fermentation. It is valuable as an easily digested nutrient and stimulant.

Changes in Milk—The cream rises in from four to eight hours, and is hastened by slightly warming the milk, but the quantity is not increased. Milk changes on standing. It absorbs oxygen and gives off carbon dioxide. Later on lactic acid is formed in large quantities, the milk becomes turbid and changes into a form called curd or "clabber." The cream which had previously risen to the surface disappears.

In decomposing milk a chemical poison develops in the form of a ptomaine, which is called tyrotoxin. It was originally discovered in cheese, but has since been found in milk, and is especially liable to occur in ice cream. In poisoning by tyrotoxin the symptoms are similar to those produced by other irritant poisons, accompanied by violent vomiting and purging, and great depression.

Milk from Diseased Cows—Milk from diseased animals soon decomposes. It sours very rapidly and generally an offensive odor develops. Pus can sometimes be found in the milk of cows suffering from certain diseases, and the milk sometimes coagulates on boiling. In cows suffering from tuberculosis during the early stages the quantity of milk is often increased, but it contains an excess of water and alkaline salts, and is deficient in fat, sugar and proteids. Tuberculosis is very prevalent among cows, and it is the same disease that is found among human beings, hence it follows that it is quite possible, and indeed it seems

proven, that tuberculosis is transmitted from cows to man through the milk. Milk may also be the medium through which germs of disease may be transmitted, the germs gaining admission to the milk after leaving the cow. In this way, scarlet fever, diphtheria and typhoid fever have frequently been spread through communities, especially among children. The milk may be infected by watering it with impure water, or by putting the milk in unclean cans.

Milk which is contaminated with pus from an inflamed udder, or an abscess on the udder, will produce sore mouth in children, accompanied by ulcers on the mucous membrane of the lips and gums.

Butter—Butter, as an article of diet, supplies most people with the principal amount of fat which they take. Fresh butter is easily digested by most people, but, when it becomes rancid, it causes dyspepsia and diarrhea. This is true of all decomposing fats.

Adulterations—Lard and beef fat are commonly used as adulterations. There is nothing harmful in this form of adulteration and no objection to its use, provided, however, the fact of adulteration be not concealed. In truth a good quality of adulterated butter, sold under the name of "oleomargarine," made of clean, wholesome, beef suet, under careful supervision as regards cleanliness and purity, may be preferred to a poor quality of so-called "country butter" made without due regard to cleanliness as regards the milk or utensils, or where the cream has been permitted to stand so long as to undergo a partial decomposition before churning.

"Butterine," which is made by the addition of hog's fat or lard to butter, a poor quality of which is often used, is less to be desired than the oleomargarine. The various forms of coloring matter introduced into butter to improve its appearance are, as a rule, harmless.

Cheese—There are many varieties of cheese, some being made from skim milk, others from the whole milk. Cheese contains a large amount of nitrogenous matter and fat in a small bulk, and under some conditions affords an excellent form of nourishment. It is, however, somewhat difficult of digestion, especially to

certain individuals, producing indigestion by its very richness. Strong odor in cheese is evidence of partial decomposition and consequently is in a measure an indication of the possibility of bad consequences arising from its use. Cheese having strong, offensive odor should be avoided. Those least likely to produce indigestion and dyspepsia are the fresh varieties made from whole milk. The possible presence of the poisonous ptomaine, tyrotoxin, should always be remembered when serious symptoms arise after partaking of cheese. The treatment for tyrotoxin poisoning will be found in the chapter on poisons and antidotes elsewhere in this book.

Eggs—Eggs contain a large amount of nourishment in very small bulk. The food stuffs in the egg are chiefly albumin and fat with a large amount of water. Eggs should be used only when perfectly fresh. Hard boiled eggs are difficult of digestion, owing to the fact that the albumin is coagulated, hence the digestive juices have less opportunity to act upon the mass, it being very slowly dissolved by the fluids; poached and soft boiled eggs are the easiest digested. Raw eggs whipped into a custard with milk and slightly cooked form one of the most digestible methods of taking eggs.

ALCOHOLIC BEVERAGES.

In considering alcoholic beverages it will be necessary to discuss at some length the nature and effect of their principal constituent, alcohol, although different beverages may vary widely in their composition, effects, and the amount of alcohol which they contain.

Alcohol—Alcohol is the product of fermentation, in which process sugar is converted into alcohol. Any substance which contains carbon, hydrogen and oxygen can, by fermentation and distillation, be made to produce alcohol. The chief sources for the production of alcohol are the cereal grains, potatoes and various fruits. In the grains the starch is first converted into sugar and the sugar is then broken up into alcohol and a residue composed chiefly of water.

Physiological Action of Alcohol on the Stomach—In very small quantities it appears to aid digestion, in larger amounts it checks digestion, reddens the mucous membrane lining the stomach and produces a thickening of the membrane by increasing the amount of connective tissue between the glands. This is followed by fatty and cystic degeneration of the glands themselves and finally more or less atrophy and destruction of these parts; hence the common expression in reference to chronic drunkards that they are “burned out.” Taken habitually in large quantities it lessens and finally destroys the appetite.

Effect on the Liver—Taken in large quantities for a long time it produces enlargement of the organ by the deposit of fatty material. This is followed by an increase of the fibrous tissue and subsequent contraction and atrophy, so that the function of the liver is interfered with or abolished.

Effect on the Lungs—It produces irritation and alters the tissues of the lungs. Chronic bronchitis and pneumonia are more frequent and serious in those who habitually take much alcohol.

Effect on the Heart and Blood Vessels—Alcohol in healthy persons at first increases the force and quickness of the heart action. It causes evident dilation of the superficial blood vessels, as is shown by the redness and flushing of the skin. If it were not for this yielding of the vessels, alcohol would be a most dangerous agent, as either the strong wave of blood would break the vessel or the heart would not be properly emptied of blood during the contraction. There is danger, then, in the excessive use of alcohol in advanced life when the arteries have become more rigid, of sudden death as a result of the rupture of some of the blood vessels about the brain. Eventually the vessels on the surface become permanently enlarged and turgid, so that their course in the skin can be easily traced.

Effect on the Blood—The amount of fat is increased. The chemical changes in the blood are partially arrested.

Effect on the Nervous System—In most cases it acts at once as an anaesthetic, and lessens the rapidity of impressions, the power of thought and the perfection of the senses. In some cases, however, it seems to increase the rapidity of thought and excites the imagination, but even here the power of control over a train

of thought is lessened. The special senses of sight, taste, touch and hearing are dulled. In almost all cases moderate quantities cause a feeling of comfort and exhilaration, due probably at first to its anaesthetic effect upon the nerves of the stomach, but later to its action upon the heart, increasing the circulation and the amount of blood which is sent to the nerve centers in the brain.

Effect on the Muscular System—Voluntary muscular power is lessened, especially when large amounts of alcohol are taken at once. The finer combined movements are less perfectly made. In very large amounts it paralyzes the respiratory centers in the brain, sometimes causing death.

Effect on the Tissue Changes of the Body—Whether tissue changes in the body are materially interfered with or not is not definitely known, but probably they are to a certain extent.

Effect on the Temperature of the Body—In full doses to a healthy man or animal alcohol causes a fall in temperature. This change, however, is not marked, and in most cases the change is slight.

Effect on the Eliminating Organs—The amount of urine is slightly increased, also its acidity. The action of the skin is increased and larger amounts of insensible perspiration occur.

Remote Effects of Alcohol—The degenerative changes which occur so frequently in the stomach and liver, by the constant introduction of improper amounts of alcohol into the system, follow also in almost all other parts of the body. The brain, its membranes and its vessels, suffer early and principally. Many cases of severe brain disease and insanity are unquestionably due to excessive use of alcohol. Degenerative changes in the stomach, liver, lungs and kidneys also follow its immoderate use. The nature of the change seems to be the same in all cases, that of a fibroid and fatty degeneration. What is moderate use of alcohol in one individual may be and often is an excess in another. People differ constitutionally, and an amount of alcohol which would be of no particular detriment to one person would be a poisonous dose to another. Alcohol, by its great effect in increasing the action of the heart, is undoubtedly the cause of many diseases of the circulatory system occurring in those addicted to its use.

Conclusions on the Use of Alcohol—The vast mass of facts, physiological and of personal experiences, leads to the conclusion that alcohol is unnecessary to the well being of the healthy organism. That a man can better withstand extreme heat or extreme cold, can better perform hard mental or physical labor, and in fact has greater powers of endurance without the addition of alcohol to his diet. In certain diseased conditions, where the heart needs a powerful and rapid stimulant, the use of alcohol is invaluable, but as an article of diet it is, to the healthy individual, not only unnecessary but actually harmful.

Alcoholic Beverages—Alcoholic beverages vary much, not only in the proportion of alcohol which they contain, but in the chemical composition of the liquid.

PER CENT OF ALCOHOL IN DIFFERENT BEVERAGES:

<i>Beverage.</i>	<i>Per cent Alcohol.</i>
English ale	7.3
London porter	5.5
Scotch ale	8.5
Lager beer	4. to 8.
Bavarian beer	4.5
Vienna beer	3.5
Port wine	16.62 to 23.2
Sherry wine	16. to 25.
Madiera wine	16.7 to 22.
Bordeaux wines	6.85 to 13.
Rhone wines	8.7 to 13.7
Burgundy	8.9 to 12.
Champagnes	5.8 to 13.
Moselles	8. to 13.
Rhine wines	6.7 to 16.
Hungarian wines	9.1 to 15.
Italian wines	14. to 19.
Brandy	45. to 55.
Gin	49. to 57.
Whiskey	50. to 55.
Rum	50. to 60.

Beer—Beer is brewed from malt and hops. In inferior beers corn, wheat and sugar are often substituted for the barley malt and hops. The percentage of malt extract varies from 5 to 10.9 per cent. It is least in the bitter and highest in the sweet ales and beers. There are present in beers and ales many acids, such as lactic, acetic, gallic, and malic acid; also their salts in composition with various chlorides and phosphates. Sugar, and a small quantity of albuminous matter, are also present. Dark colored beers such as porter and stout owe their dark color to the presence of roasted malt or caramel. Volatile and essential oils are also present.

From the foregoing it will readily be seen, how complex a substance beer is and what varied and complex actions it may have upon the system.

Physiological Action—So far as known, beer seems to lessen the excretion from the system, of the products of tissue change, the amount of urea in the urine, and of carbon dioxide from the lungs, both being decreased. The action on the nervous system is the same as that of alcohol, the exhausting or depressing action of large quantities of beer, taken at one time, being probably due to the large amount of potash it contains and also to the action of the hops. When beer is taken daily in excess, it gradually produces a state of fullness and plethora of the system; this is due to the continual interference with the elimination of the fat and nitrogenous substances from the tissues. When this reaches a certain point, the appetite is lessened and the bodily power is diminished. There is imperfect oxidation, and an excess of partially oxidized products, such as oxalic and uric acids which act as chemical poisons, producing gouty and bilious disorders.

Wines—The composition of wines is even more varied and complex than of beers. It may be said, however, that they contain, in addition to the varying percentages of alcohol, varying quantities of many different ethers, some of which are volatile while others may be said to be fixed. There are also present varying amounts of albuminous matters, sugar, fat, free acids and salts. The champagnes also contain free carbon dioxide.

Spirits—Brandy is distilled from wine or fermented grapes, and contains, besides the alcohol, many ethers, tannin and color-

ing matter made from the cask or from caramel. Inferior brandy made from potatoes or grain contains a deadly poison called fusel oil. Rum is distilled from fermented juice of the sugar cane, and derives its peculiar odor from the large amount of butyric ether present. Gin is made from grain, unmalted, and besides containing the oil of juniper is flavored with various aromatic substances. Whiskey is distilled from malted grain.

Dietetic Use of Alcoholic Beverages—Some advantages may be obtained from moderate dietetic use of beer and wine on account of the presence of other substances than alcohol in their composition. Wines, on account of the large amounts of salts and sugar present in most wines, act, when taken in moderate quantities, favorably on digestion, and many people with weak digestive powers are much benefited by the addition of small amounts of wine to their diet. Port, sherry and champagne are the best forms in which wine can be taken. Beer does not so well agree with weakened digestion; its chief value is obtained when used in those cases in which there is a general impairment of the physical system the digestive powers still remaining in good condition, such as is the case with a nursing mother, or one recovering from any wasting disease, where it is desired to rapidly put on flesh. Brandy, gin and whiskey should never be added to a diet and should only be used in those cases where profound and rapid stimulation are demanded. Here we find them of value and occupying a prominent position among the remedies at our command with which to combat disease. But let them always be only considered as a medicine, and occupy a place in the medicine chest and not upon the table or sideboard. They are for the most part merely flavored and colored alcohol and they do not contain the ingredients which give a dietetic value to beer and wine; moreover they are more dangerous, since it is so easy to take them undiluted and thus introduce an amount of alcohol into the system which at once becomes harmful, and if persisted in is destructive.

NON-ALCOHOLIC BEVERAGES

Coffee—Unroasted coffee contains much cellulose, sugar and vegetable acid. There is also a small quantity of aromatic oil and caffein. The total amount of caffein is small, but it is the active principle upon which coffee depends for its stimulating effect. The caffein is not appreciably affected by roasting. When coffee is roasted it swells considerably and becomes lighter, losing from 15 to 25 per cent in weight. The sugar is changed into caramel and the caffein is liberated from its chemical combination with other substances. Several gases are formed, but carbon dioxide is the principal product. It is owing to the formation of these gases that the coffee swells so much.

As an Article of Diet—Coffee stimulates the nervous system, and in large doses produces tremors. Pure caffein in large doses produces tetanus, or peculiar stiffness of the muscles. Coffee in moderate quantities increases the frequency of the pulse, but in large amounts diminishes the pulse rate. It removes the sensation of commencing fatigue during exercise, but owing to its stimulating effect on the nervous system and circulation it produces wakefulness. Coffee has but little effect on the salivary digestion, but it retards to a considerable extent the stomach digestion when taken in considerable quantities. It slightly increases the action of the kidneys, and in some cases acts as a mild cathartic upon the intestines. Coffee should not be kept long after roasting unless it is kept sealed tightly, as it rapidly loses its aroma. It should not be ground until time of using. Coffee should not be boiled in making, as the boiling liberates the tannin and other bitter principles in the coffee and dissipates the aroma or flavor. In making coffee the water should be brought to the boiling point and then the finely ground coffee should be added and the vessel then removed from the fire and allowed to stand for five minutes. The liquid is then poured off from the grounds and placed upon the fire again and brought to the boiling point, when the beverage is ready for use. The partially exhausted grounds can be again used by the addition of fresh coffee for a second infusion, but should be thrown away after the second using.

Adulterations—The usual adulterations are chicory, grains and beans. The whole coffee grain is not often adulterated, but the adulterations are frequent in coffee which is ground before being put up in packages for the market.

Tea—Teas are of two kinds, black tea, such as Souchong and Oolong, and green teas, such as Hyson and Gunpowder. Dry tea contains about 1.8 per cent of thein, which is the active principle of tea, and which corresponds to the caffein in coffee. Tea also contains albumin, sugar, cellulose, tannin and vegetable extracts, and small amounts of other matters, such as oil and resin.

As an Article of Diet—Tea has a decided stimulating and restorative action on the nervous system. This effect is not followed by depression. The pulse is a little quickened. The action of the skin is increased, while that of the bowels is lessened. The kidneys are but little if any affected. The salivary and stomach digestion are slightly retarded by teas. This is probably due to the large amount of tannin contained in tea, and it is claimed that the addition of a small quantity of carbonate of soda to the tea entirely removes this effect upon the digestion.

Making the Infusion of Tea—The water should be brought to the boiling point and the tea then added and the vessel removed from the fire and allowed to stand for five or six minutes. The liquid should then be poured off from the leaves and reheated over the fire.

Cocoa—Cocoa contains an active principle called theobromin, which greatly resembles caffein and thein found in coffee and tea, but the composition of cocoa removes it widely from tea and coffee as an article of diet, as cocoa contains a large amount of fat, in some instances as much as 40 to 50 per cent. It also contains from 15 to 18 per cent of proteid matter, with some vegetable extractives and a large amount of phosphate of potash.

As an Article of Diet—The large quantity of fat and proteid substance which it contains makes cocoa a very nourishing and valuable addition to the diet. It is very useful in weak states of the system, and in healthy men where great exertion is required.

Adulterations—In commerce cereal grains, starches, arrowroot,

sago, or potato starch and sugar, are very commonly mixed with cocoa, and some of the so-called homeopathic cocoas are rightly named, for the amount of cocoa is very small.

Chocolate—This is a preparation of cocoa from which the greater part of the cocoa butter or fat has been removed. The paste is then mixed with sugar and various flavoring substances and pressed into moulds.

Coca—The leaves of the *erythroxylon coca*, when chewed, are said to remove the feeling of fatigue, and the Indians of Peru make use of the plant for this purpose. The active principle is cocaine, which is so useful as a local anaesthetic.

Kola—This is made from the seeds of the kola nut. It relieves fatigue to some extent when chewed. It increases the amount of urine, acts as a stimulant upon the nervous system, and increases arterial tension.

Condiments—Under this head come vinegar, mustard, pepper and salt.

Vinegar— This is a useful addition to the diet, but should be pure and not contain sulphuric acid, as, when thus adulterated, it not only furnishes a strong acid, but one which forms an insoluble compound with any lime salts with which it may come in contact in the body.

Mustard—Mustard is made from the seed of the mustard plant, from which the outer coats have been removed and the residue of the seed ground into a fine powder. It is a mild irritant and stimulates the flow of saliva and gastric juice and adds flavor to the food when taken in moderate quantities.

Pepper—Pepper is an irritant stimulant to the glands in the mucous membrane of the mouth and stomach and increases the flow of saliva and gastric juice. Ground pepper, as found in the shops, is almost always adulterated with linseed, mustard seed, husks, flour and ground rice.

Salt—Salt is a necessary addition to the diet. The fluids of the body all contain more or less salt and all foods are made more or less palatable by the addition of salt.

EXERCISE.

In order to have perfect health every organ must have its required amount of exercise. If exercise is deficient either in a general sense, or as regards any particular organ, nutrition suffers, and the organ is lessened in size and more or less degeneration occurs. If the exercise be excessive, nutrition, at first apparently vigorous, becomes at last abnormal, and often a degeneration occurs which is as complete as that which follows the disuse of the organ. Every organ has its special stimulus which excites it to action, and if this stimulus is perfectly normal in quality and quantity perfect health is necessarily the result. The term exercise, however, is generally used to mean only the action of the voluntary muscles. This action is not absolutely essential to the exercise of the other organs, still it is really necessary, as the heart especially, and to a certain extent all of the other organs, except possibly the brain, are profoundly affected by the action of the voluntary muscles. Without this exercise of the voluntary muscles the health must inevitably be lost, and it becomes important, therefore, to determine the effects of exercise, and the amount which should be taken.

The Effects of Exercise—*On the Lungs*—The most important effect of muscular exercise is produced on the lungs. The circulation of the blood through the lungs is much hurried, and the quantity of air taken in and of carbon dioxide thrown out is wonderfully increased by exercise. The amount of air taken into the lungs by a person when walking at the rate of six miles per hour is seven times as great as the amount taken in while lying quietly in one position. This is more clearly shown when it is stated in this way: Under ordinary circumstances a man draws in 480 cubic inches of air per minute; if he walks four miles an hour he draws in five times 480, or 2400 cubic inches; if six miles an hour seven times 480, or 3360 cubic inches. The amount of carbon dioxide or waste from the system in the expired air is correspondingly increased. The amount of water removed from the system, both by the lungs, in the form of watery vapor, and by the skin in the form of perspiration is

vastly increased by active exercise. Carbon dioxide is formed chiefly in the muscles, and is taken from them by the blood and carried to the lungs, where it is expelled from the body, and this process must be rapid so that there may be no accumulation of the carbon dioxide in the tissues, else their power of strong action is reduced or made impossible. That this is true is shown by the diminution in the power of bodily action which occurs when the circulation of the blood through the lungs is by any means interfered with.

Muscular exercise is then clearly necessary for the sufficient elimination of carbon from the body, and in a state of prolonged rest either there must be a diminished amount of food containing carbon taken into the body or carbon will accumulate in the tissues with its resultant poisonous effects. Excessive or badly arranged exercise may lead to congestion of the lungs, and even to bleeding from the lungs. Deficient exercise, on the other hand, is one of the conditions which favor the development of those changes in the lungs which depend upon altered nutrition, such as consumption. Certain rules may be established from these facts. During exercise the action of the lungs should be perfectly free—no impediment must be allowed to the freest play of the chest and the action of the muscles of respiration—and as soon as the respiration becomes labored or sighing the lungs are becoming too congested and rest is necessary in order that the normal balance may be regained. Another point is that the great increase in the amount of carbon thrown out of the system during exercise demands a corresponding increase in the amount of carbon taken into the system in the food. This increase in carbon is best supplied in the form of fat, and not in the form of starch. Again, as alcohol lessens the excretion of carbon dioxide through the lungs, it is hurtful during exercise, and for this reason, as well as because it lessens the power of voluntary action, those who use large amounts of alcohol are incapable of great exertion. This is well understood by trainers of athletes, who allow no spirits and but little if any wine or beer. Water alone is the best liquid to train on. Finally, since the amount of carbon dioxide removed through the lungs is so much increased, it follows that a much larger amount of pure air is necessary, and all enclosed buildings, such as gymnasias, where exercise is taken, should have every facility for thorough and complete ventilation.

On the Heart and Blood Vessels—The action of the heart is greatly increased in force and frequency by exercise, and the flow of blood through all parts of the body as well as the heart itself, is augmented. The increase in heart beats is from ten to thirty beats per minute in ordinarily active exercise, but in severe exercise it may be much more. After exercise the rate of heart beats falls below the normal and may become irregular or intermittent. During exercise if the heart is not oppressed the action, though rapid and forcible, is regular and equable; but when the heart becomes embarrassed, the pulse becomes quick, small, and then unequal and irregular. After resting for a time the healthy heart again regains its normal regular action. Excessive exercise when too prolonged leads to more or less permanent disturbance of the heart and vessels; in extreme cases even to rupture of the heart or some of the vessels. In other instances excessive exercise is followed by palpitation and hypertrophy of the heart, and rarely to valvular disease. These affections may be avoided by careful training and due proportion of rest during exercise. Deficient exercise leads to weakening of the heart's action and ultimately to dilation, and fatty degeneration. In commencing exercise to which one is not accustomed the heart must be closely watched. Excessive rapidity (one hundred and twenty to one hundred and forty beats per minute), inequality and irregularity will indicate that rest and more care in beginning the exercise are needed, in order that the heart may become accustomed to the additional work.

On the Skin—The skin becomes red from dilation of the blood vessels, and perspiration is increased; water, chloride of sodium (salt) and acids (fatty) pass off in great abundance. This evaporation reduces and regulates the heat of the body, which would otherwise soon become excessive; thus, even during violent exercise, if the perspiration be free, there is but little increase in the internal heat of the body, but if from any cause the perspiration be checked the bodily heat soon increases, languor follows and in extreme cases great prostration ensues. No amount of external cold seems to be able to check the passage of fluid through the skin, although it may check the rapidity of evaporation. During exercise there is little danger of chill under almost any cir-

cumstances, but when exercise ceases there is then great danger, because the heat of the body rapidly falls and declines below the normal amount, while the evaporation from the surface still continues, thus increasing the reduction of bodily heat. The lessons to be drawn from these facts are that the skin should be kept extremely clean and the pores thoroughly opened. During exercise the body may be thinly clad, but immediately afterward it should be covered sufficiently well to prevent the least feeling of coolness of the surface. Flannel is best for this purpose.

On the Voluntary Muscles—The muscles grow, become harder and respond more readily to will power. Their growth, however, has a limit, and when any single muscle or group of muscles is exercised to too great an extent, they will, after growing to great size, commence to waste. This does not seem to be the case when all the muscles of the body are exercised, for then no single muscle or group of muscles can be over-exercised. Prolonged exertion without sufficient rest interferes to a certain extent with the nutrition of the muscles and they become soft. The rules to be drawn from these facts are that all muscles and not a single group should be brought into play, and that periods of exercise must be alternated with long periods of rest, especially during the early part of training, until the system becomes accustomed to the exercise.

On the Nervous System—It is supposed that the intellect is less clear in those who take excessive exercise. But there is no doubt that great bodily activity is quite consistent with extreme mental activity and, indeed, considering that perfect nutrition is not possible, except with bodily activity, it may be inferred that sufficient exercise is necessary for perfect performance of mental work. The point to be made is that exercise should be in moderation and not pushed to excess. Deficient exercise causes a heightened sensitiveness of the nervous system, a sort of morbid excitability, and a greater susceptibility to the action of external agencies.

On the Digestive System—The appetite is largely increased by exercise, the increased desire seeming to be mostly for meat and fat. Exercise makes digestion more perfect and absorption more rapid. The circulation through the liver and abdominal organs

is carried on with more vigor. The effects of exercise on digestion are greatly increased if it is taken in the open air, and it is then a most valuable remedy for some forms of dyspepsia. On the other hand lack of exercise lessens both the appetite and digestive power.

General Effect of Exercise on the Body—The chief effect is to increase the oxidation of carbon. It also eliminates water from the body; after exercise, therefore, the body, especially the blood, is poor in water. It increases in circulation everywhere, thus increasing the rapidity of tissue change and renewal. It increases the outflow of heat from the body by increasing the perspiration, which carries out with it large amounts of waste matters, thus cleansing the system. It strengthens all parts of the body. To obtain the best effects of exercise, it must be indulged in, carefully and in moderation. Sufficient intervals of rest must be allowed and care must be taken to avoid chilling after exercise. There must be supplied to the body a sufficient increase in the amount of food elements, which are demanded by the increased rapidity of tissue changes which occur during action. The lungs must be free to act to their full capacity, so that sufficient oxygen may be taken in to properly exchange for the increased amount of carbon dioxide in the blood.

Clothing — The object of clothing is to protect the body against cold and heat. Materials for clothing are chiefly cotton, linen, wool, silk and leather.

Cotton is a vegetable substance, the fiber being very hard, and it does not shrink in washing, does not rapidly absorb water, either into the fiber or between the fibers in the cloth. It conducts heat less rapidly than linen, but much more rapidly than wool. Its advantages as an article of dress are cheapness and durability. Its hard non-absorbing fibers place it far below wool as a warm clothing.

Linen is also made from vegetable fibers. It conducts heat and absorbs water slightly better than cotton. It is smoother than cotton, but as an article of clothing belongs in the same class.

Wool is an animal fiber; is a bad conductor of heat, and great absorber of water, but is a poor absorber of odors. Water penetrates into the fibers of the wool as well as between them. This

property of absorbing water is a very important one. During perspiration the evaporation from the surface of the body is necessary to reduce the heat which is generated by the exercise. When the exercise is finished the evaporation still goes on, and to such an extent as to chill the body. When dry woolen clothing is put on after exercise the vapor from the surface of the body is condensed in the wool and gives out again the large amount of heat which had become latent when the water was vaporized. Therefore woolen clothing feels warm when used during sweating. In the case of cotton and linen clothing the perspiration passes through them and evaporates from the surface, so the loss of heat continues and the body becomes chilled. In addition to this the texture of the wool is warmer, on account of its bad conducting power, and it is less easily penetrated by cold winds. The disadvantage of wool is that its soft fiber shrinks on washing and becomes smaller, harder and less absorbent. The admixture of certain proportions of cotton with wool forms a cloth which shrinks but little in washing and still retains a considerable portion of the qualities which make the pure woolen cloth desirable.

General Conclusions on Clothing—Protection Against Cold—Wool is superior to either cotton or linen, and should be worn for underclothing in cold weather. Cotton and linen have about the same value for protection against cold.

Protection Against Heat—Texture has nothing to do with protection against direct rays of the sun; this depends entirely upon color. White is the best color, then grey, yellow, pink, blue and black. In hot weather, therefore, white or grey should be chosen. In the shade, the effect of color on heat is not marked. The thickness and heat conducting power of the material are the conditions which influence heat.

Protection Against Cold Winds—For equal thickness leather and rubber goods take first rank, wool the second, cotton and linen are about equal in the third place

Absorption of Perspiration—Wool has about double the power of absorption of cotton and linen.

Absorption of Odors—This partly depends upon color. Experiments show that the order of power of absorption of odors is greatest in black, then in blue, red, green, yellow and white. As far as texture is concerned the absorption is in proportion to

the power to absorb water, hence wool absorbs more odor than cotton or linen.

DISINFECTION AND DEODORIZATION.

The term, disinfectant, which has now come into popular use, unfortunately has been employed to mean several different things, but the sense in which it is used here is to designate those substances which can prevent infectious diseases from spreading, by destroying their specific poisons. The mode in which the poisons are destroyed is a matter of indifference, provided the destruction of the poison be accomplished.

The general term, air purifier, is given to those agents which in any way cleanse the air; disinfectants then come under this classification. The term, deodorants, is given to those substances which are used to prevent putrefaction in excreta or in waste animal or vegetable matters, or to remove the products of putrefaction. In a great many instances the substances which are recommended as disinfectants are little more than deodorants, and ought properly to be considered as such.

The chief human diseases which are spread by means of special agencies (conveniently designated under the term, contagia) are: Infectious fevers, such as typhoid and typhus fevers, scarlet fever, various forms of malarial fever, yellow fever and cholera, bubonic plague, influenza, whooping-cough, diphtheria, erysipelas, puerperal fever, syphilis, gonorrhea, glanders, tubercular phthisis and leprosy.

It has long been the belief that the spread of infectious diseases might be prevented by destroying the agencies in some way, and various fumigations, fires and similar plans have been employed for centuries during great epidemics. In order to apply disinfection in the modern sense of the term we ought to know, first, the nature of these contagious agencies; second, the media through which they spread; third, the effect produced upon them by the substances with which we attempt to destroy them.

Contagia—Contagia are those substances which, when developed under diseased conditions in one organism or individual,

will, when transferred to some other organism or individual offering a favorable or suitable soil or location for their development, produce the same or a similar disease in that organism or individual. The nature of contagia is at present the object of eager inquiry and study, and in some instances the specific substance which develops the disease has been isolated and studied but in the great majority of cases much is yet to be learned. Contagia are now considered to belong in the main, if not altogether, to a general class called bacteria and are considered as being closely allied to that form of growth known as fungi. Bacteria are given various names, according to certain peculiarities of shape, habit or development, such as baccilli, microbes, vibrios and monads. It is still an open question whether the bacteria themselves produce the disease, or whether the disease is produced by the products of tissue change within the bacteria themselves, and which are passed out in the form of excreta, thus infecting the soil in which the bacteria grows. Under this theory the disease is caused by the poison which the bacteria produce. Many forms of bacteria are not only harmless, but beneficent. In truth our digestive functions are dependent, for the most part, upon the action of bacteria for their completion. Fermentation is the result of the development of bacteria, and all decomposition is caused by some form of bacteria.

As knowledge of disease increases, the belief is becoming more general that each of the specific diseases, which are capable of being transferred from one individual to another, and which are not dependent upon some organic function or functional derangement of the organism, is due to some special and distinctive germ or micro-organism. Many of these germs have been recognized under the microscope and have been isolated and their habits studied, and means found for their destruction.

Media or Material in which Contagia are Spread—The special and distinctive symptoms of each disease are usually attended with special violence in some one or more parts of the body, and it is especially in these parts of the body that the contagia are formed. Rapid changes, either of growth or decay, are found in these parts. The skin and mouth and throat in scarlet fever, sore throat in diphtheria, skin and bronchial secretions in

measles, the stools containing the broken down tissue of the lining mucous membrane and glands of the intestine in typhoid fever, the sputa of consumptives containing broken down lung tissue are all evidences of this. In fact those parts of the body which are the breeding place of the contagious particles give off the poison in greatest amount. The portions of the body thus thrown off, and containing the contagia, may then pass into the air or find their way into the drinking water or food, and in this way be introduced by breathing, drinking or eating, or through broken surfaces of the body. Any break of the skin may be the point of entrance for certain kinds of bacteria, which thus produce the disease. The methods of disinfection ought then to deal with the poisons at their point of origin as far as they are accessible to us. Thus the way to prevent the spread of scarlet fever is to attack the poison in the skin from the very first and destroy it there if possible; failing in that, the effort to prevent the epidermis from breaking up and passing into the air should be made. Oily disinfectant inunctions of the skin and complete disinfection of all clothing which in any way touches or comes in contact with the skin of the patient are the two chief means of preventing the spread of scarlet fever. In typhoid fever and all diseases characterized by altered excreta the immediate destruction of all particles of poison in the stools by strong chemical agents and the prevention of the poison getting into sewers, drinking water or food, are measures obviously demanded by the peculiarities of these special diseases. The more complete our knowledge of the breeding places of bacteria in the body the more perfect will be our means of disinfection.

Agents for the Destruction of Bacteria—Heat is, when properly applied, absolutely destructive to germ life, and is, for the disinfection of clothing and other materials suitable for the application of heat, such as food, water, etc., the best and surest method. Steam at high temperature is more rapid and certain than dry heat.

A large number of chemical agents are employed. Some are true disinfectants; others are simply antiseptics, which have the power of suspending the vitality and power of propagation of the micro-organisms, thus reducing their effect; still others are

but deodorants, which oxidize the products of decomposition, and thus destroy the offensive odors. These chemical agents are divided into gaseous, liquid and solid substances.

Dried earth, quicklime, charcoal and a mixture of lime and tar are the most important of solid disinfectants. Charcoal is the best. Solutions of potassium permanganate, zinc chloride, carbolic acid, corrosive sublimate, formaline, etc., are the liquid disinfectants commonly used, and the strength of the solutions should be regulated by the uses to which they are to be put, as they are all more or less active poisons, and when used about the human body should be in very dilute solutions.

Purification of Rooms after Infectious Diseases—All woodwork should be scrubbed with a solution of corrosive sublimate (1 in 5,000) and afterwards with soft soap and water. The walls should be well washed, and if papered the old paper should all be removed and the room repapered. All fabrics and furniture should be removed, and if facilities are not at hand for their thorough disinfection they should be burned. The room should be tightly closed and fumigated with the fumes of chlorine or burning sulphur for three to six hours. After that the windows should be opened and allowed to remain open for one to two days.

Disinfection in Various Diseases—*Scarlet Fever*—The points of attack are the skin and throat. The skin should be rubbed from the very beginning of the rash until complete desquamation is accomplished with camphorated oil or oil with a little weak carbolic acid. The throat should be washed with a weak solution of carbolic acid in water, of a strength sufficient to taste sweet and still not bite the tongue. Clothing and bedding should not be washed in the common laundry, but by themselves, and thoroughly boiled. There should be no attempt at disinfecting the air during the time the room is occupied, but as perfect ventilation as possible should be secured.

Small Pox—The skin and the discharge from the nose, mouth and eyes are to be disinfected. The skin is the most difficult to manage, but keeping the surface well smeared with camphorated oil or carbolized vaseline will be of great service. A solution of permanganate of potash and sulphurous acid should be

used for the mouth, nose and eyes. The clothing should always be burned unless absolutely reliable means of disinfection by high temperature is at hand. The contagion of small pox passes into the air enclosed in small, dried pieces of pus and epithelial scales, and is very difficult to destroy.

Measles—Oily applications to the skin, and carbolic acid in the vessels receiving the expectoration are the proper measures.

Typhoid Fever—The bowel discharges are believed to be the chief, if not the only agents in spreading the disease. Every discharge should, at once, be mixed with some strong chemical agent; of these corrosive sublimate is the best. The following formula will give an efficient solution: Corrosive sublimate, one-half ounce; hydrochloric acid, one ounce; aniline blue, five grains; water, three gallons. Chloride of lime also acts well. Carbolic acid in a 5 per cent solution is effectual. The stools should be thoroughly mixed with the solution and then allowed to stand in a covered vessel for some hours before final disposal. In towns they should be finally disposed of in the sewers and in the country they should be buried at a point far removed from the water supply; they should never be thrown into earth closets or upon manure heaps. Bed clothing should be washed separately from the common laundry and be thoroughly boiled.

Diphtheria—The specific poison seems to reside chiefly in the false membrane and in the discharge from the mucous membrane of the mouth and throat. The application of strong caustics to the membrane has been recommended both as a curative agent and as a disinfectant. Nitrate of silver, twenty grains to the ounce of water, or equal parts of hydrochloric acid and water may be applied with a swab. Various disinfectant gargles may be used and pulverized sulphur may be blown upon the surface of the membrane. Peroxide of hydrogen or pyrozone is an invaluable agent in the removal, and destruction, of this false membrane. The full strength solution can be applied to the membrane with a swab and after the application the surface thoroughly washed with a solution made by dissolving two tablets of No. 1 in a half tea cup of water which has been boiled. These measures should be begun as early as possible in the course of the disease.

Deodorants—Charcoal acts well as a deodorant, but soon becomes clogged and loses its power. The effect of dry earth, marly and clayey soil is similar to that of charcoal, but these are not so soon clogged. Quicklime may be sprinkled over solid excreta or added to sewer water until a deposit occurs leaving a clear fluid above. This is a very imperfect way of deodorizing. Chloride of lime is a powerful deodorant and is also a sterilizer, especially at high temperatures, but even at ordinary temperatures it will almost completely destroy bacteria. Chloride of soda has a similar action but is more soluble and throws down a deposit. Corrosive sublimate is very powerful in one-tenth to one-half per cent solution, but its use is attended with some danger, when used on a large scale, as it is an active poison. Carbolic acid in 5 per cent solution in water is an active and reliable agent. The solution can be thrown down cesspools or sprinkled over manure heaps.

GENERAL REMARKS ON INDIVIDUAL HYGIENE.

It is impossible to make rules sufficiently elastic and yet precise enough to meet every possible case. While individual hygiene should be a matter of study to everyone, it is by no means desirable that one should pay a constant or minute attention to one's health. Such care will defeat its object. One should only exercise such reasonable care, thought and prudence which, in a matter so important, everyone is bound to take. Every man, for instance, is the best judge of the exact diet which suits him. If he understands the principles of diet and remembers that the amount of food and exercise must be balanced and that evil results from an excess of either he is hardly likely to go wrong.

"Temperance and exercise" was the rule laid down by the ancients, and if we understand by temperance "sufficient food for wants, but not for luxuries," we shall express the present ideas of true hygiene.

The nutrition of the body is so affected by individual peculiarities that what may be a satisfactory and proper diet for one person would be a very unwholesome and improper diet for another. Proper and slow mastication of the food is necessary, and it is

extraordinary how many affections of the stomach called dyspepsia arise simply from faulty mastication, from deficient teeth or from swallowing the food too rapidly. Many persons are too thin simply from their own habits; they eat chiefly meat and eat it too fast, when they should eat very slowly and eat more bread and starchy substances. Fat persons, on the other hand, by lessening the amount of starch and taking more exercise can often lessen the amount of fat to almost any extent. These rules are, however, only general and there are many exceptions, for some persons are normally thin, or fat, as the case may be, and variations in the diet have but little or no effect. The exact amount of exercise is a matter for individual decision, it being remembered that exercise in the free air is necessary for good health, and that the healthiest persons are those who have the most exercise. As a rule people, especially women who are not obliged to work, take too little exercise, and in them the muscles become flabby and poorly nourished.

Attention to the skin is another matter of personal hygiene. The skin must be kept perfectly clean and well clothed. For cleanliness, cold bathing and friction are the best. The effect of cold water is to improve the nutrition of the skin so that it acts more readily and this is especially true when combined with friction. The effect of heat on the skin, and especially the action of the Turkish bath, and its effect upon health, is somewhat undecided. To some people the use of the Turkish bath is harmful, acting as a depressant and leaving them weak and languid. The Turkish bath as a curative agent in certain diseases is extremely useful but it should not be daily used by anyone in good health except possibly in a very mild form, and always concluding the bath with the application of cold water to the surface of the body.

The care of the bowels is another matter of personal hygiene, and is of much importance. Constipation is to be avoided, but on the other hand the constant use of purgatives is destructive to digestion and absorption, and the use of injections, though less hurtful to the stomach, is undesirable. On the whole it seems that relief for the bowels can usually be obtained by proper exercise, especially by exercise of the abdominal muscles and by the use of certain articles of diet, such as pure water in considerable quantities at meals, the use of bran bread, honey, fruit and

such gently laxative foods. Many cases of chronic constipation are due to a lack of tone in the muscular fibers in the bowel walls, amounting in some cases to a partial paresis. Such cases do not require strong purgatives, as they are only made worse by their use. The treatment should consist of such remedies as have a direct action upon muscular tissue, stimulating it to a proper action and giving it tone. (See chapter on Constipation.)

The regulation of the passions must also be left to the individual. The control of morals has baffled the exertions of the priest and the statesman, and can only be attained by the education of the individual so that he may see the evils of excess. The period of puberty corresponds with the period of most important growth, when the bones are consolidating and uniting and both muscles and nerves are largely absorbing nourishment and are developing their fullest power. Too early indulgence in sexual gratification or the greater drain of solitary vice arrest this development to a considerable extent, and prevent the development of powers of strength and endurance necessary to a healthful life. The baleful influences of venereal diseases, affecting not only the individual, but wives and children, and through the family influencing the state itself, can only be avoided by proper personal hygiene. The amount of mental work and the practice of general good temper and cheerfulness and hope are other points which each man must control for himself. Great mental work can be borne well if hygienic principles of diet, exercise, etc., be attended to.

Hope and cheerfulness are great aids to health, no doubt from their effect upon digestion. Usually, too, they are combined with a quick and active temperament and with rapid bodily movements and a love of exercise.

The individual application of hygienic rules will differ according to the sex and age and circumstances of the person. In the case of children we have to apply the general rules with as much caution and care as possible, as we must depend upon external evidence to prove their utility. In the case of adults individual experiences soon shows whether a certain rule is or is not beneficial and what modification must be made in it. Were the laws of health and physiology better understood, how great would be the effect!

And a better understanding of the laws of health and physiology can only be obtained by educating the people. Teach them how to observe, how to reason from cause to effect and enable them to recognize that certain acts or conditions are harmful and have an effect upon their health and happiness. It is with this object in view that the author of this book has given so much space to hygiene and has gone into such detail, feeling that if anyone is stirred to a desire for knowledge upon such important subjects, and led to a deeper study in volumes devoted to the consideration of hygiene and physiology he will be amply repaid for his labor.

NURSING.

The Sick Room—The comfort and well being of an invalid depend to so great an extent upon his surroundings that in consideration of the universal liability to illness and accident there ought to be in every well regulated and properly arranged house an apartment chosen and especially fitted for the use of the sick. This matter, however, in spite of its importance, is very generally ignored, and in order that one may be able to do the best possible with the facilities at hand it is well to know what a sick room ought to be and how to make the best use of such a room as can be obtained. A model sick room is large, light, airy, clean and quiet. The larger the room the better it can be aired—the more airy, the cleaner it will be, and the cleaner it is the more favorable it is for the recovery of the patient. Space is therefore important from a hygienic point of view.

Location of Sick Rooms—The sick room should be located upon the sunny side of the house, having a south or west aspect. Only in exceptional cases, such as inflammation of the eye or brain, is it necessary to have the room darkened, and even then a south room, with the light carefully moderated with blinds and curtains, is to be preferred to a darker room on the north side. Light is a healthful stimulus, and in the majority of cases not only light but direct sunshine is beneficial, partly on account of the cheerfulness which it imparts and partly because of its actual physical effects. The Italian proverb, "Where the sun does not enter the doctor does," well illustrates the healing power of sunlight. There should be as many windows as possible, and they should be on two sides of the room, so that circulation can be obtained for the air in the room. The windows should be such as can be opened both top and bottom, and should reach nearly to the floor so that the patient can see out of them. Bars and streaks of light are to be guarded against, as they may cause a great deal of annoyance. The sick room should be as far as possible removed from the

noises and odors of the house and street; the walls should be thick enough to deaden external sounds and the floor should not be so unsubstantial as to vibrate under every tread.

Where these conditions are not to be obtained try to have the room above unoccupied. There are numerous advantages to be gained, especially in cities, by having the sick room at the top of the house. It will be more quiet, in a stratum of purer air, and in case of contagious disease can be more completely isolated. Wherever possible there should be two connected rooms for the use of the sick, so that the patient can be moved to the adjoining room at least once daily. A good plan is to have one for night use and the other for use by day. This plan allows thorough ventilation of the unused room and facility for thorough cleansing, to say nothing of the benefit afforded the patient by the change from surroundings which soon become monotonous. It is a common, but very reprehensible, practice to have food, medicine, and all sorts of paraphernalia lying about in a confusion that would be enough to make a well person sick. They should be kept out of sight except at the moment of actual use. Growing plants or freshly cut flowers may fill their place, much to the advantage of the patient. The flowers should be removed, however, as soon as they begin to fade. Do everything to make the sick room the brightest and cheeriest room in the house. A certain amount of depression is the inevitable accompaniment of sickness. It cannot be entirely dispelled, but all counteracting influences should be brought to bear. Dark, gloomy and unpleasantly suggestive surroundings do much to magnify and intensify it.

The walls and ceiling are best of some soft, uniform, neutral tint, as pale green or gray. Avoid wall paper of conspicuous tone or colors, or regularly recurrent figures, as in some states of the mind in sick people, the constant study of an ever recurring figure in the wall paper or ceiling becomes a positive element of harm. Better than any paper is paint or a hard finished surface which can be scrubbed. The monotony may be relieved by pictures, but judgment must be exercised in their selection. The woodwork should be severely plain and flat. There should be no cornices or mouldings, and no woolen curtains, portieres or drapery of any kind. All woolen stuffs easily become infected and are extremely

difficult to disinfect. If any curtains are used they should be of light wash stuff and should be frequently laundered. Carpets even are much better dispensed with. Rugs may be used, as footsteps are noisy on the bare floor, but they must be small enough to be easily removed each day and thoroughly shaken and aired. If there is a carpet on the floor it can only be swept and cleaned when the patient can be taken out of the room; here we see the advantage of the double rooms for the sick. The surface dust, however, can be quite effectually and noiselessly removed by means of a damp cloth wrapped around a broom.

Furnishing of the Sick Room—The essential furnishings of the sick room are a bed, on easily and noiselessly running castors, a bedside table, an easy chair, a lounge and a large movable screen. The latter can be readily improvised by fastening a shawl or sheet over an ordinary clothes-horse. Convenient tables are made with the point of support very much to one side, so as to reach well over the bed; they may be raised or lowered to any desired height. Bed trays, with a low rim around three sides, may be used by the patient for all purposes of a table. They are about thirty inches long by fourteen broad, and stand on legs high enough to keep the weight entirely off the body. A bed rest, a commode, and similar small conveniences may be desirable, but the fewer superfluous things the better. All the furniture should be of the simplest possible style. Elaborate carvings only find lodging-places for dust, and whatever adds to the difficulty of maintaining absolute cleanliness is to be avoided.

Noises in the Sick Room—Everything should be substantial and in good repair. Ill-fitting blinds, rattling windows, and creaking doors are nuisances demanding speedy remedy. Many slight and apparently unimportant noises, which are nevertheless peculiarly annoying to the sensitive nerves of the sick, may easily, with a little care and forethought be done away with. Keep rocking chairs out of the room. Avoid wearing clothes that rustle or shoes that squeak. If coal must be put on the fire bring it in wrapped in paper and lay paper and all on the fire. Use a wooden rather than a metallic poker to rake the fire. Noise which is understood and inevitable is far less trying than a much slighter noise, unexplained or unnecessary. Intermittent noise is

more hurtful than a continuous noise. Sudden sharp or jarring sounds are especially bad. A good nurse never startles the patient. Even in such a small matter as the way of addressing the patient be considerate of his weakness. Do not speak abruptly from behind him, making him first jump, then turn around and ask what you said, but get his attention before speaking, and use a clear, distinct, though not necessarily loud voice. Whispering in the sick room, or just outside the door, is one of the many distressing forms in which the solicitude of the patient's friends will manifest itself. There are few things more tormenting, though it is usually done with the very best of intention not to disturb him. A low distinct tone, when conversation is necessary, will seldom annoy. Whispering will annoy, as will any sound which strains the attention or creates a sense of expectation. It should be laid down as a rule that what the patient is not intended to hear should never be said in his presence.

These seem very small points to dwell upon, but good nursing depends largely upon attention to details so apparently trivial that a careless person would never think of them, but which make or mar the comfort of the invalid. Small things grow very large and important to the sensitive patient in the limited interests of the sick room. Nothing is insignificant or beneath notice which has any bearing on the welfare of the patient. To keep the sick room in a proper condition is as important a part of the nurse's care of the patient as the more personal ministrations.

The Bed—It is a common notion that anyone can make a bed, and possibly also that it is also of very little account how a bed is made. To a thoroughly healthy person who will sleep soundly all night and turn out of bed as soon as he awakens, it does not indeed matter much, although he spends a third of his life in it, whether his bed be well or illy made, so long as it is clean and warm. But the invalid whose confinement to the bed is more or less compulsory and permanent and whose acuteness of sensation is increased by disease, finds few things more seriously affecting his comfort than the condition of the bed. To know how best to arrange and take care of the bed is very important to the nurse.

The Bedstead—Wooden bedsteads for the sick should not be used, when anything else can be obtained. The best kind is made entirely of metal, iron or brass, with a woven wire mattress. The metal bedsteads can be more easily kept clean and wholesome than those ordinarily found in homes. They are non-absorbent, and afford no hiding places for vermin, which in spite of all precautions will sometimes appear even in well cared-for homes. The sign of a bug should be the signal for a most careful search and extermination, for, once having gained a foothold, they multiply with alarming rapidity. Corrosive sublimate is the surest remedy but, being a violent poison, it must be used with great care. Another exterminator, recommended for all kinds of vermin, consists of the following formula: Aqua ammonia, two ounces; saltpeter, one ounce; soap scraped, one ounce; soft water, one quart.

Bedsteads should be on castors, and no heavier than is necessary for strength. The best dimensions for a bed in which a sick person is to be cared for, are six and a half feet long, three feet wide, and two or at most two and a half feet high. If it is too wide the nurse will be unable to reach the patient without getting on the bed herself, always an objectionable proceeding; if too high, it adds to the difficulty of raising the patient, and makes it harder for convalescents to get in and out.

Mattresses—Some kind of a mattress should be placed over the wire springs. The mattress may be made of hair, straw, jute, excelsior, or some similar material. Straw has the advantage of cheapness, and the ticks can be frequently emptied, washed, and refilled, and the old straw burned; but hair of good quality makes the most comfortable bed, being at once firm and elastic. It can be cleaned and subjected to disinfecting temperature without damage. A feather bed is a thing which is never to be thought of in connection with the sick room, being a combination of all that is objectionable. Its use is merely equivalent to putting the patient into an immense poultice; it is warm, soft, absorbent, and consequently nearly always damp. Unless it is stuffed uncommonly full the patient sinks at once into a hole. It is impossible to keep it level, and if it once gets wet there is no way of drying it. Nothing is more conducive to the development of bed sores than a feather bed.

Fracture Board—In many surgical cases it is of great importance that the bed be kept flat and level. Where this is required a board the size of the mattress is placed under it. This is known as a fracture board. It should have holes in it for ventilation.

Sheets—For sheets cotton or linen may be used, though the preference is given to cotton, as it does not conduct away the heat quite as rapidly, consequently the patient is not so liable to chill. The sheet should be wide enough to extend at least one foot over each side of the bed. It should not have a seam in the middle.

To Make the Bed—Spread the lower sheet smoothly and tightly over the mattress, tucking it in securely on all sides. It can be made still more firm by fastening it to the mattress with safety pins. Be careful that the sheet is put on straight, for if not it will draw into wrinkles, and if pinned is likely to tear. There should not be a blanket between the sheet and mattress. It may be necessary to protect the under sheet and mattress from discharges by a piece of rubber cloth, covered by a second folded sheet. The water proof and cover sheet should both be drawn as tightly as possible and well tucked in. Enameled cloth, oiled muslin, or even in an emergency heavy brown paper, may be substituted for the rubber cloth when that cannot be obtained. The rubber being only for the protection of the bed, should not be retained longer than is really necessary, as the patient will be more comfortable without it.

Bed Covers—The bed covering should be enough for warmth, but no more; for too much warmth is enervating, and too much weight impedes respiration. There should be another sheet tucked in well at the foot, so as not to be pulled out, but left long enough so that the upper end may be turned down for some distance over the blankets. A wooly surface coming directly in contact with the face is generally disagreeable, though in some cases, where warmth is desirable, as in acute rheumatism, the patient may be put directly between the blankets without intervening sheets. Blankets of good quality are the best bed covering, being warm and not of great weight. They should come up high enough to tuck well in around the throat if desired, but the patient should not be allowed to sleep with his head under

the bed clothing, breathing the noxious emanations of the body. Several thin coverings will be warmer than a single cover of equal weight, because of the non-conducting air enclosed between them. Heavy quilts and counterpanes will be found burdensome. If it is desired to avoid the weight of a counterpane, a clean white sheet will take away the unfinished look of the blankets alone, and at the same time protect them from dust. Counterpanes being chiefly ornamental may be taken off at night and thus kept clean longer. An extra blanket will be needed toward morning, and should always be at hand. Blankets as well as sheets need washing whenever they become soiled or are taken from infected beds. Fresh blood stains can be removed from blankets or ticking by spreading over the spot a paste of fine starch or wheat flour and leaving it to dry there.

The Position of the Bed—The sick bed should stand far enough from the wall to be accessible on all sides. It should be in such a position that its occupant can see out of the window, but whatever artificial light is employed had best be behind the patient. Nothing should be allowed under the bed, nor should there be any drapery to prevent free circulation of air below it. Sitting on the bed, leaning on it, or in any way shaking it causes great discomfort to the patient. In some cases even the touch of the bedclothes cannot be endured. When this is the case they may be supported over the seat of pain by "cradles," frames of iron or wood made for the purpose. The two halves of a barrel hoop tied together in the middle so as to form four legs, make a very good one, or the clothes may be lifted on a strong cord running diagonally from the head to foot of the bed.

Method of Changing Sheets on the Sick Bed—When it is desired to change the sheet while the patient is in the bed, it can be easily done by rolling the soiled sheet lengthwise, beginning at the side farthest from him and rolling toward him until the roll lies closely alongside of him. The clean sheet previously rolled in the same way, is then unrolled toward the patient, over the space from which the soiled one was taken, until the two rolls lie side by side. The patient may then be lifted or turned over on to the clean sheet, and the soiled one taken entirely away, and the remainder of the clean one unrolled. The upper sheet can be

changed with even less trouble, and no exposure. Pull the clothes free at the foot of the bed. Spread the clean sheet outside of them all and then over it spread a blanket and tuck both in securely at the foot. The entire covering which it is desirable to remove can then be removed leaving the clean sheet and blanket behind. If the extra blanket is not at hand the clean sheet may be rolled across its width, and after being well tucked in at the foot, unrolled toward the head, under everything. The soiled sheet may then be rolled down toward the foot and removed.

See that each blanket is made smooth and straight. If they are not wide enough to tuck in well at the sides, the upper one may be put on with its length across the others and well tucked in, otherwise they will all be dragged off on one side when the patient turns over. The custom of taking a crumpled upper sheet and putting it on in place of a soiled lower one is not good economy in sickness. If there can be only one clean sheet given, let it be the one on which the patient has to lie. The sheets ought to be changed frequently, at least once a day, if only to be aired and returned to the bed again. Dampness in bed or bedding is always dangerous. If the bed gets to feeling close or unpleasant, it may, to some extent, be aired by lifting the clothes at the edge of the bed and fanning them up and down a few times. This may be done without danger to the patient, and in warm weather especially will be found refreshing. If you cannot change the sheets pull them as tight as possible and straighten them out. This will give a fresh feeling to the bed. The best arrangement is to have two beds, each with its full complement of bed clothing, one set being aired while the other is in use. Even a very sick person can be easily moved by two persons.

Moving the Patient from One Bed to Another—Bring the two beds closely together. Be sure that the sheet upon which the patient is lying is a sound strong one. Roll two poles or long brush handles in the sheet, one on either side, until they are close up to the patient. This forms an impromptu stretcher upon which he can be easily moved. The sheet can then be removed in the ordinary manner. If the two beds are of the same height one person can easily move the patient from one to the other. Hav-

ing the two beds side by side, pull the mattress of the one on which he is lying a little way over the other. He may then be slid down upon the fresh bed and the other taken away. This is easy if the mattress is not too thick and heavy. Where the patient can help himself, even a little, the matter of moving him is not so difficult. To move him to another bed is really but little more difficult than to arrange his own under him, while the change makes him more comfortable and enables his own bed to be thoroughly aired and made up. In some surgical cases, such as a fracture of the thigh, the change of beds is impracticable. In such cases a wide bed should be used and some of the advantages of two beds may be obtained by using alternate sides of it. One half should be kept for day time and the other for night.

Pillows and Pillow Cases—Be sure to have plenty of pillow cases, so that they may be changed often. Nothing more disgusts a sensitive person than to be compelled to lie with the head upon a grimy, dirty pillow case. The pillows should be changed frequently, as they become hot and hard. Shake the pillow up and turn it often. In doing this lift the patient's head carefully, and let it rest upon one arm, while with the other hand the pillow can be changed and arranged. Then lay him back gently; do not let his head drop with a jerk.

To Prop a Patient up in Bed—When using pillows, first see that one is pushed well down against the small of the back, and then put each additional pillow against the last. This will keep them from slipping, and support the back without interfering with the play of the lungs. Wooden bed rests are made, and, for temporary use, a straight backed chair turned up side down is very good.

Rubber Cushions, Air and Water Beds—Small pillows of various shapes and sizes are often useful about the sick bed, and rubber air cushions are especially comfortable. (See appendix) They should be smoothly covered, and the cover sewed—not pinned on. In some cases air or water beds will be called for. They are both made of rubber. The air mattress may be put on an ordinary bedstead, but the water bed lies in a wooden trough. The water with which it is filled should be at a temperature of about 70° F. and should be renewed every two weeks. The water bed

should be covered with a blanket before putting on the usual bedding. Care must be taken to avoid pricking water or air cushions or beds, causing them to leak.

Bed Sores—Bed sores result from continued pressure upon prominent parts of the body and may vary from slight abrasions of the skin to deep wounds. They appear most frequently upon the lower part of the back, the hips, shoulders, elbows or heels, but may develop wherever conditions are favorable. There is liability to them in all cases of long confinement in a recumbent position, especially where there is much lowered vitality of the system, as in paralysis, fevers, and old age. Very heavy and very emaciated patients are alike predisposed to them, and they are among the most trying complications of surgical cases, where motion is restricted. Bed sores are frequently the result of bad nursing, and the cases are rare where a good nurse cannot avert their formation. They are more easily prevented than cured when once established.

Preventive Measures—Preventive measures consist in keeping the parts thoroughly clean, and the surface under them dry and smooth; and in hardening the skin, and so far as is possible, removing local pressure. This precaution should be taken at the beginning of any long sickness, without waiting for manifest signs of danger. The parts most subject to pressure must be frequently washed with soap and water and thoroughly dried. The sheet should be changed as often as it becomes damp from any cause, and the greatest pains be taken to keep it free from wrinkles, crumbs and inequalities of any kind. Crumbs in the bed constitute one of the minor ills of sickness and too much care cannot be exercised in keeping the bed free from crumbs. There should be a regular crumb hunt after each meal. The patient's clothes must not be permitted to get into folds or creases under him. The skin may be hardened by bathing several times daily with alcohol, brandy or eau-de-cologne. Follow this by rubbing in well a small quantity of simple ointment like vaseline to keep the skin supple. Finally dust the surface of the parts with talcum powder. If lycopodium powder be used it must be remembered that it is highly inflammable, and must be kept away from a lighted lamp or candle. When the danger of the formation of bed sores

is extreme or the skin already abraded it may be protected by a simple coat of flexible collodion or a solution of gutta percha. The pressure may be relieved by frequent changes of position, or when practicable by circular pads or air cushions, or in extreme cases by the use of the water bed. The latter equalizes the pressure and is, in cases of paralysis or prolonged incontinence of urine, the only efficient safeguard.

Bed Sores—The first symptom evident to the patient is a pricking sensation or a feeling as if he were lying on something rough, or there may be no subjective indication whatever. A patient may be delirious, paralyzed or too weak to complain, and a bed sore be far advanced before it is discovered unless constant care has been exercised in watching for indications of trouble of this kind. Daily and careful examination should be made of such parts as are especially subjected to pressure, and the first discovery of reddening or roughing of the skin, or of pain or pressure, be accepted as a serious warning of trouble. If these symptoms pass unnoticed or uncared for the discoloration will become deeper and the inflammation progress until sloughing results.

Treatment of Bed Sores—After the skin has become broken the use of spirits should be discontinued, or else they should be diluted, for although still useful they cause much pain. The surface should be dressed with oxide of zinc ointment or with vaseline. Twenty grains each of tannic acid and oxide of zinc worked into an ointment with an ounce of vaseline makes an efficient dressing. When the slough has formed its separation is hastened by the use of a charcoal poultice. (See Poultices.) When the slough has become detached it almost invariably shows greater extent of injury than the surface indications would lead one to anticipate, often laying bare deeper tissues, even to the bone. Poulticing should not continue longer than necessary to remove the gangrenous portion, as it tends to soften and break down the neighboring parts. Prof. Brown-Siquard advises the alternate applications of heat and cold, an ice bag for ten minutes, followed by a warm poultice for an hour. After the separation of the slough the resulting ulcerated surface is treated with some stimulating disinfecting remedy, balsam of Peru or carbolic acid one teaspoonful in a teacupful of water, applied on lint,

only within the limits of the sore. Iodoform finely powdered can be dusted over the surface, but best of all is No. 40 (Iodoform ointment) found in the Cabinet. Cover the lint with a piece of oiled muslin or rubber cloth of a little larger size than the sore and hold the dressing in place with strips of adhesive plaster—not by bandages. The dressings must be renewed at least once a day, and the surface of the sore thoroughly washed with a solution made by dissolving two tablets of No. 3 in a teacup of warm water; using small pledgets of cotton to cleanse it; then thoroughly dry the surface of the sore and surrounding parts before the ointment is again applied. Remove all pressure by circular pads. The general strength of the patient must be supported, and the circulation as far as possible promoted, as the immediate cause of bed sores is defective nutrition. If neglected they may result fatally, as the constant discharge may prove too great a drain upon the already debilitated patient, or blood poisoning may result from the absorption of the products of decomposition into the blood.

CIRCULATION OF THE BLOOD.

In order that we may know something of the nature of the blood and the manner in which it is carried through the body it becomes necessary to very briefly describe the character of the blood itself and the mechanism of circulation.

The Blood—The blood is the most important as well as the most abundant fluid in the body, and it pervades nearly every part of the body, and upon its presence and its unceasing motion life as well as health depends. The blood to the naked eye appears as a simple red fluid, but examined under the microscope it is seen to be made up of a multitude of little solid bodies floating in a clear, colorless liquid. These little solid bodies are called corpuscles, and the liquid in which they float is known as plasma. The plasma is made up of serum and fibrin. The corpuscles are mostly of a yellowish red hue, and it is from their vast numbers that the blood derives its red appearance. There are some white ones. They are larger than the red, and are of

a different shape, but are comparatively few in number. The blood while it circulates through the body is perfectly fluid, but upon removal from its natural surroundings it exhibits a well known tendency to coagulate or solidify. The fibrin of the plasma separates itself from the serum, and entangles the floating corpuscles into a mass called a clot. This peculiarity affords protection against undue loss of blood, for dangerous hemorrhage would follow even a slight cut, did not the clots thus formed effectually close the injured blood vessels and prevent further escape of the vital fluid. Occasionally this coagulation of the fibrin takes place while the blood is still in motion in the blood vessels, obstructing the circulation seriously. This is called thrombosis. A clot so formed or any solid body, arrested in the arteries or capillaries, constitutes an embolus.

Functions of the Blood—The office of the blood is to carry nutrition to all parts of the body, and to remove its waste material. The process is carried on by means of the heart and blood vessels of three distinct kinds: the arteries, which carry the blood away from the heart, veins, which bring the blood back to the heart and capillaries, which connect the arteries and veins.

The Heart—The heart is a pyramidal shaped organ situated nearly in the center of the chest. The apex, pointing downward, forward and to the left, can be felt between the fifth and sixth ribs. The base is on a level with the upper border of the third rib. The base is fixed in one position, but the apex is freely movable. The heart is hollow and divided into four cavities or chambers of nearly equal capacity, two at the base, called auricles and two below called ventricles. A valve between the two auricles exists at birth, but at once closes, and gradually disappears, so that afterwards there is no connection between the two sides of the heart. The left side always contains pure blood; the right side impure blood. If the valve between the two auricles fails to close after independent circulation is established, the impure blood mixes with the pure, and we get what is called a "blue baby," a condition which is soon fatal. Between each auricle and its corresponding ventricle there is an opening guarded by a valve, which permits the passage of fluid in but one direction—downward. Each ventricle has also another opening, provided

with valves connecting it with a large artery, the aorta on the left and the pulmonary artery on the right. The auricles also have other openings through which the blood flows into them from the great veins. As the auricles fill with blood they contract, and the blood, following the line of least resistance, is forced into the ventricles. They in turn similarly contract, forcing the blood on into the arteries, regurgitation being prevented by the valves guarding the openings between the auricles and ventricles. The sounds heard when the ear is placed over the heart are caused by the closing of these valves.

Course of the Blood Through the Body—Let us now follow the blood which is forced out of the left ventricle. It passes first into the aorta, the main trunk of the arteries. The aorta ascends from the upper part of the left ventricle for a short distance, then forms an arch backward over the upper part of the left lung and passes downward into the abdomen, where it divides into two great branches. From every part of its length it sends out branches; these branches again divide and subdivide into numberless smaller vessels extending to all parts of the body, gradually diminishing in size as they become more and more remote from the heart. The blood is thus forced through the entire system of arteries by the contraction of the left ventricle of the heart. The minute branches of the arteries finally empty their contents into an even smaller set of vessels known as capillaries. These vessels are so small as to be invisible to the naked eye, yet they serve for the transmission of the minute blood corpuscles. They interlace in every direction, making an elaborate network, and finally unite to form blood vessels of the third class, the veins, which carry the blood back to the heart. These veins are extremely small at the extremities but as they approach the heart they increase in size because of their uniting until they finally all combine into two great trunks, the superior and inferior venæ cavæ, which empty into the right auricle of the heart. The veins returning to the heart follow closely in the track of the arteries which lead away from it, but they lie nearer the surface. The velocity of the blood current decreases as it approaches the capillaries, its progress being delayed by the increasing narrowness of the vessels and the intricate path it has to travel. Time

is thus allowed for the assimilation of the nutrient portion of the blood by the living tissues with which it is here brought into intimate contact. Having once completed the circuit of the arteries, capillaries and veins the blood is restored to the heart, and its circuit of the system is complete. It has, however, undergone a change in character and appearance during its stay in the capillaries; some of its elements have been appropriated and it has become charged with waste matter, and lost its bright red color. Before it can be fit for further use it must be purified. To accomplish this and get back to that side of the heart from which it started it has another journey to take. This is called the pulmonary circulation. From the right auricle, into which the blood is poured by the veins, it flows into the right ventricle, and in the next contraction of the heart the blood is forced out into the pulmonary artery, which leads to the lungs. This, like all other arteries, is subdivided into small branches, and finally connects with a set of capillaries in the lungs. In this set of capillaries the blood is brought near the atmosphere and undergoes a process of renovation. The blood then passes from these capillaries into the pulmonary veins which carry it back to the left auricle, ready to start again upon its system of double circulation. It will be seen, therefore, that in the pulmonary system of circulation the general arrangement is so far reversed that the arteries become the bearers of impure blood and the veins carry pure blood. The blood vessels, branching in every direction, communicate with each other in all parts of the body, so that if the main course of the blood be interrupted, it may still go on its way by making a detour through smaller branches. Such communication of vessels is called anastomosis. The collateral circulation which it allows is of great value in surgery, as it makes it possible to tie a large vessel without obstructing the general circulation.

The Pulse—Each contraction of the heart sends out a wave which distends the blood vessels, and which they by their elasticity carry through the entire arterial system. This periodical distention is called the pulse. Wherever an artery approaches the surface, the pulse beats can be felt and counted. The pulse is a valuable guide in disease, as it varies with the condition of the

heart, and affords an accurate index of its action. It is usually taken at the radial artery, just above the wrist; if it becomes imperceptible there it may still be felt at the temporal artery in the temple, the carotid artery in the neck, or at any other large artery, as the large arteries show the pulsation longest. In children the pulse is best felt in the temporal artery during sleep. It is often very difficult to get a child's pulse anywhere when it is awake.

Taking the Pulse—To take the pulse accurately place two or three fingers along the course of the artery, making slight pressure, and count for a full minute. The rate varies with varying circumstances. Age, sex, food, temperature, position, exertion, mutual states and many other conditions modify it, even in health. It is usually more rapid in women than in men, in children than in adults. It is slow during sleep, quicker after taking food, more rapid standing than sitting, sitting than lying down. The average rate in a healthy adult is seventy-two beats per minute; and in a child, one hundred and twenty. Nearly all abnormal conditions of the body have some effect upon the pulse. Increase in the rate is more common than decrease, and the character, as well as the rate of the pulse, are subjected to variations. In a quick pulse, each beat occupies less than the normal time. When the volume of the pulse is greater than usual, it is said to be large or full; if less than usual, small. When the pulse can be easily stopped, it is said to be compressible; when it can be arrested only with difficulty, it is said to be incompressible. In an irregular pulse, succeeding beats differ in length, force and character. In an intermittent pulse, a beat is now and then lost, the rhythm otherwise being regular. An intermittent pulse may sometimes be found in a person otherwise perfectly healthy. It is always a less serious symptom than an irregular pulse. Other departures from the normal standard are variously described as hard or soft, sharp, jerking, bounding, shotty, throbbing, thready, wiry, flickering, etc., the names of which sufficiently describe their effect to the touch.

TEMPERATURE.

The blood has another function, that of keeping the body warm. Animal heat is generated by continued chemical change in which the blood is an active agent. The bodily temperature in health, remains very nearly the same, about 98.4° F., in spite of the variations of the external temperature. The action of the skin keeps the heat from accumulating, and the arteries, under the influence of the nervous system, dilate or contract, and so assist in maintaining the equilibrium, by altering the rate of production to correspond with the loss of heat. Life is secure so long as the production and escape of heat are evenly balanced. A deviation of more than one degree from the normal standard, that is above 99.5° or below 97.5° may be regarded as evidence of disease. There is only a range of about 15° or 16° within which life can be sustained. A temperature above 108°, or below 93°, will almost invariably prove fatal. The danger is in proportion to the amount of the departure from the normal and the length of time the condition continues. Temperature below the normal standard is far more dangerous than the same number of degrees above, as the following table shows:

TABLE OF RANGE OF TEMPERATURE.

	<i>Degrees.</i>	<i>Degrees.</i>
Hyperpyrexia,	106 and over,	extremely dangerous.
High fever,	103½	106
Moderate fever,	101	103½
Sub-febrile,	99½	101
Normal,	98	99½
Sub-normal,	97	98
Collapse,	95	97
Algid collapse,	95,	extremely dangerous.

Nearly, if not all, morbid states are accompanied by alterations in temperature, some of which are so typical as to be of great value in determining the nature of the disease. The pulse rate in fever is generally increased in proportion to the elevation of the temperature, though the proportion varies in some diseases. In scarlet fever, for instance, the pulse will be more

rapid than in typhoid fever with the same degree of fever. If the pulse be more rapid than the degree of temperature should call for, it indicates weakness of the heart.

Clinical Thermometer—One of the most important aids to diagnosis and also to the treatment of disease is the clinical thermometer, and no home should be without one. Every mother should have one at hand and know how to use it and read it. She can do no harm and may often do a great deal of good by using it on the first suspicion of departure from health. A change of temperature is often the first symptom of departure from the normal condition of health, occurring even before the individual feels any illness, and it is important to get this first variation from the normal temperature.

Use of Clinical Thermometer—Any great variation in bodily temperature may usually be discovered by the touch and feel of the skin, it being hot and dry, but to measure the extent of the variation accurately one must use a clinical thermometer, and nothing in the Home Remedy Cabinet will be found of such frequent value as the standard clinical thermometer, and close observance of the following rules and hints upon its use will enable any one to apply it in all cases where it is demanded, with intelligence. Before use the top of the column of mercury in the stem should be shaken down at least two or three degrees below the normal degree. To do this properly grasp the top of the stem between the thumb and forefinger of the right hand, holding the bulb down; then strike the left hand a smart blow with the closed palm of the right. The mercury will thus be jarred downward toward the bulb.

Places Where Temperature May be Taken—The temperature may be taken in the mouth under the tongue, in the armpit, in the groin, in the rectum or in the vagina. The temperature of the interior of the body is more even and somewhat higher than that of the surface, so that when it is taken in either of the natural cavities, the temperature will show at least one-half a degree higher than when taken in the armpit or groin. The mouth will be a little cooler than the cavities which are constantly closed, and the armpit a little cooler still, and it will take longer for the thermometer to rise in these places. Keep the

patient well covered for some little time before taking the temperature in the armpit. The parts should not have been exposed for washing or dressing for at least half an hour previously. The armpit must be dried from perspiration, care be taken that the clothing is not in the way, and the thermometer held firmly in place. This is best done by pressing the arm closely to the side and bending it at the elbow until the hand touches the opposite shoulder. Be sure to leave the thermometer in place long enough; generally it should remain until the mercury has remained stationary for several minutes. In a very thin person it is impossible to get the correct temperature in the armpit. Taking the temperature in the mouth is not always a safe plan, as there is danger that a child or an irresponsible patient may bite off the bulb. The bulb should be placed under the tongue and the lips kept closed during the time the instrument is in the mouth. The rectum gives, perhaps, the most reliable temperature, as there are fewer possible sources of error. This method should always be employed for infants. The tube should be oiled and inserted for nearly two inches. Remember that if the rectum contains fecal matter the mercury will not reach so high a point as if the bulb comes directly in contact with the mucous membrane.

Time Required to Take Temperature — The length of time required depends largely upon the locality selected, and also to some extent upon the thermometer, some instruments requiring but three minutes to do the work for which others require eight or ten minutes. The thermometer found in the Home Cabinet is a standard three minute instrument, and under proper conditions need rarely be left in place over three minutes. Never leave a thermometer with a patient unwatched unless you are very sure he is to be trusted to take care of it. Temperatures must not only be accurately taken, but correctly recorded. Note the degree and hour of taking immediately without leaving time to forget.

Fever—A slight variation from the normal temperature is of less serious import in a child than in an adult, unless it is found to be increasing. An increase beginning each day a little earlier is a bad indication; a decrease from a high temperature beginning earlier each day is a sign of improvement. Fever usually

has a daily fluctuation, which is sometimes much exaggerated. Sometimes fever is continuously high with only the normal daily variation, or it may be remittent—that is with a wide range between its highest and lowest points, though never sinking to the normal temperature—or intermittent, in which the temperature alternately rises to a febrile height and falls to or below the normal. In some diseases, as pneumonia or lung fever and others which begin with a chill, the rise in temperature will be rapid and sudden; in others there will be but little rise at first, but a gradual increase will ensue. Typhoid is an example of the latter class. In fever a rise may be expected toward evening, but in rare cases the rule may be reversed, and there will be a rise in the morning and remission in the evening. In some cases of typhoid fever and in phthisis two increases, and two distinct remissions of the fever may be noticed during the twenty-four hours. These variations in temperature can only be recognized by carefully testing with the thermometer, and in illness extending over any considerable period of time a regular series of tests of temperature should be made and a record of each reading of the thermometer be made, noting the time of taking. The temperature should be taken at the same hours each day to show accurately the cycle of fluctuations. An irregularity in temperature in the course of a disease which usually has a regular type generally means some complication. Or it may depend upon some local cause, and disappear when the conditions are corrected. Thus constipation will often cause a rise in temperature, and this will fall again after the bowels are emptied. Bad air may have the same effect. The decline of temperature may, like the rise, be gradual from day to day, or there may be a sudden dropping to a steady normal temperature in from six to thirty-six hours.

Varying the Temperature by Artificial Means—Temperature may be reduced by applications of cold or by the use of medicines; it may be increased by external heat and by stimulants. The former act best when the temperature has a natural tendency to fall and the latter when the tendency is to rise, as the effort of nature is then assisted rather than opposed.

RESPIRATION.

Anatomy and Physiology—The blood in the lungs undergoes a process of purification, rendering it fit for renewed use. To understand how this is accomplished, one must know something of the construction and workings of the respiratory organs, the chief of which are the lungs, trachea and muscles of the chest. The lungs themselves are composed of a sponge-like substance, made up of air-cells lined by a network of minute blood vessels. These blood vessels are subdivisions of the pulmonary veins and arteries. A series of bronchial tubes connect the air-cells with the external air, those of each lung uniting into a single bronchus, and the two finally with each other, to form the trachea or windpipe. Each lung is enveloped in a delicate membrane called the pleura. This is, at the root, or upper part of the lung, folded back so as to also form the lining of the chest. The pleura secretes a fluid which keeps it constantly moist, and enables the two surfaces to slide easily against each other.

The chest is separated from the abdominal cavity by a muscular partition—the diaphragm—which alternately rises and falls, as its fibers contract and relax. This motion is involuntary but partially under the control of the will. As the capacity of the chest is increased by the descent of the diaphragm, the additional space is filled by air, sucked in through the trachea and bronchi, thus expanding the elastic air-cells. As the diaphragm rises, this extra supply of air is forced out again. The size of the chest cavity is still further affected by the movements of the muscles moving the ribs, by elevating or depressing them. By these muscular actions, and the alternate expansions and contractions of the lungs, the alternate inspirations and expirations are produced which we call breathing or respiration.

The lungs are not completely filled and emptied by each respiration. A certain amount of air is stationary in them. The additional supply drawn in and out, sometimes called tidal air, is but a small proportion of the entire contents of the lungs, but it is diffused through and alters the character of the whole. At the end of each respiration occurs a period of repose, about equal to the entire period of action. A healthy adult ordinarily

breathes about eighteen times a minute, taking in each time some twenty cubic inches of air. At this rate it requires sixteen respirations to completely change the air in the lungs. By this gradual introduction of the outer air, its temperature is rendered more fit for contact with the delicate capillaries, and there is a reserve supply in case of accidental embarrassment of respiration. It is worth noticing that the habit of taking deep inspirations increases the strength and capacity of the lungs.

How the Blood is Purified—The direct object of respiration is the purification of the blood. The air is a mechanical mixture of oxygen and nitrogen, with a small proportion of carbonic acid gas and watery vapor. Its average composition is a little less than twenty-one parts of oxygen, to seventy-nine parts of nitrogen. The nitrogen in the air acts simply as a diluent. The oxygen is the universal supporter of life, the vitalizing force of all animal organisms. Carbonic acid, on the contrary, is so poisonous a gas that two or three parts of it in a thousand will produce sensibly bad effects, as headache, nausea and drowsiness. Five per cent of carbonic acid gas in air breathed may prove fatal.

Air-cells.—The walls of the air-cells consist of a mere film of mucous membrane, thin enough to allow interchange of gases to take place through it, though impervious to liquids. Oxygen has a stronger affinity for blood than for nitrogen; so, when it is brought near, it leaves the air inspired, to unite with the blood in the lungs. But carbonic acid and water—both of which are found in the blood—have greater affinity for air, and pass into it. So the air expired retains its nitrogen, and takes up carbonic acid gas and water, but loses a part of its oxygen.

Rate of Respiration—The processes of circulation and respiration are thus intimately connected, and whatever modifies the pulse affects also the breathing. There are usually four pulse beats to every respiration. The rate of respiration therefore varies as does that of the pulse, being more rapid in women than in men, in children than in adults, and modified by position, exertion, excitement and other conditions; but unlike the pulse, it is partly under the control of the will. Respirations are best counted, when possible, without the knowledge of the patient,

as to be natural they must be unconscious. The respirations are somewhat slower during sleep.

Counting the Respirations—One can usually see the accompanying rise and fall of the chest; but, to count accurately, the hand should be laid flatly, and lightly over the stomach, where the motion may be distinctly felt. Respirations below eight, or above forty, per minute, may be considered indicative of danger.

Variations in Respiration—The character, as well as the frequency of respirations, is subject to variations. In man, breathing is abdominal; in woman chiefly thoracic. It may be regular or irregular, easy or labored, quiet or noisy, deep or shallow. Sometimes it presents very marked peculiarities. When each breath is accompanied by a deep snoring sound, it is said to be stertorous. Difficulty of breathing arising from any cause, is called dyspnea; total absence of breath is called apnea. Dyspnea arises when, from any cause, the quantity of air reaching the lungs is disproportionate to the amount of blood sent by the heart for purification. The blood may be in an unhealthy condition; it may be congested in the pulmonary capillaries, or it may be sent too quickly. The air may be unfit to perform its work, or it may be shut out by disease of the lungs or air passages. If the supply of pure air be in any way entirely cut off, asphyxia results, that is, the blood fails to be oxygenated, a condition necessarily fatal, if not soon relieved.

VENTILATION.

Nature of Impurities of Air—The whole animal kingdom is constantly engaged in abstracting oxygen from the atmosphere, and throwing off into the air a poisonous gas, carbon dioxide; hence some counteracting influence is necessary to prevent the entire atmosphere from becoming depleted and unfit to sustain life. This influence is found in the vegetable world, which under the stimulus of light, reverses the plan of the animal, and absorbs carbon dioxide gas, and gives off in its place oxygen, thus securing the continual purification of the air. The air

during its stay in the lungs acquires not only a dangerous proportion of carbon dioxide gas, but also organic impurities, waste matter thrown off from the blood, and from the lung substance. All other excreta, especially that of the skin, lend their aid to the fouling of the atmosphere, and there are frequent sources exterior to the body from which deteriorating influences may arise. A single gas burner in a room consumes more oxygen than would be required for three additional persons.

Where there is sickness the proper ventilation of the room becomes of vital importance, owing to the increased amount of organic matter of the most deleterious quality, and to the reduced powers of resistance of the system. A healthy adult requires one thousand cubic feet of air space, constantly renewed.

A sick person should have two or three thousand cubic feet, as the air is more quickly contaminated and cannot be renewed so rapidly, owing to the susceptibility to draughts. It is impossible to get too much fresh air.

In ventilation two constant currents are necessary—one outward, removing the impure, and one inward, supplying the pure air.

Inlets and outlets should be of equal capacity, on different sides of the room and at different heights, to secure thorough distribution. It is best to have them small and numerous, giving rise to many and moderate currents. They should be as far as possible from each other and from the patient.

Methods of Securing Inflow of Pure Air—In ordinary cases windows may be kept open, more or less, day and night without danger. Ventilation during the night is not less important than during the day, though the air must be more cautiously admitted, as it is colder and more damp. Cold is greatest and the body least able to resist it in the early morning, just before daylight, but more heat, and not less air, is called for. Instead of closing the windows and adding the benumbing effect of carbon dioxide poisoning to that of cold, stir up the fire and give the patient additional clothing and footwarmers. If there must be a choice of two evils air too cold will in most cases do less harm than foul air. It is a common error to confound cold air with pure air, and to suppose that ventilation can be measured by a thermometer. No greater error could be committed; the only test ordinarily

practicable is by the sense of smell. A "sick room odor," perceptible upon entering from the fresh air, is incontrovertible evidence of poor ventilation. It is obviously desirable that a nurse should have a good nose, but often after a short time spent in a vitiated atmosphere its sensitiveness will be lost, so that it ceases to be a reliable guide. Too great care in respect to ventilation cannot be exercised.

Method of Securing Outflow of Foul Air—The best means of securing the outflow of foul air is by an open fire. In a large room additional means of heating may be required. If it is too warm for a fire to be desirable a lamp burning on the hearth is good to create a draught. Stoves assist ventilation in the same way as grate fires, though not to the same extent, by drawing off the foul air. A pan of water should be kept on the stove to dampen the air by its evaporation. Heat without moisture is injurious, a certain amount of watery vapor being essential to the wholesomeness of the air. Furnace heat is especially dry, and steam radiators are worse and give no aid to ventilation.

Degree of Warmth—In all disorders of the respiratory system the room should be kept at a temperature of from 70° to 75° F.; in purely febrile disease 65° is more suitable; in other cases 68° is a good point. Whatever temperature is decided upon should be steadily maintained. It should be remembered that there is especial necessity for warmth in children, in the very aged and in cases of diarrhea. It is of far greater importance to keep the sick room warm when the patient is out of bed than when he is in it. People rarely take cold under the bedclothing.

Remember that the lungs cannot, in any confined space, fulfill their office of purifying the blood and in removing its waste particles, unless provision is made for the constant renewal of the air. This cannot be too much emphasized. There are three important rules in regard to ventilation: first, sufficient pure air must be introduced; second, the foul air must be removed; third, these ends must be achieved without injurious draughts.

DIET IN DISEASE.

Composition of Food—All animal bodies are made up of four elements—oxygen, hydrogen, nitrogen and carbon, together with a small quantity of mineral matter. Oxygen and hydrogen in combination form water, which enters into all constituent parts of the body, amounting to more than two-thirds of the entire weight. Life is sustained by a continual process of oxidation or combustion, producing heat and energy. To supply material for such production of vital force and also to build up and repair the waste of the tissues carrying on the work of the body, food is required. Our food, in whatever form we take it, is composed of some or all of the four elements above named, in variously proportioned compounds. The hydrocarbon compounds, of which starch, sugar, fat and gum are the most familiar and most important, furnish the materials for oxidation, and whatever surplus that may be taken into the system is stored as fat. These foods may be called the heat producers.

Nitrogenous compounds are more especially flesh formers, and go to repair the waste of the body. The most important of them is albumin, and the entire group of related compounds, including fibrin, casein, gluten, gelatine, etc., and from their resemblance to albumin are sometimes called albuminoids. Neither group has exclusively the one function, for in the transformation of albuminoids into living tissue some heat is produced, and in all healthy tissue there must be present some hydrocarbons. The division into the two great classes, however, is useful, since it forms a basis for all scientific dietetics.

In addition to these two great groups of food matter certain earthy salts are required; phosphorus for the nervous system, iron for the blood, lime for the bones, potash and soda for the muscles, etc. These we take insensibly, they being present more or less in everything we eat and drink. Common salt—chloride of sodium—is the only one which we make a practice of adding to our food.

Hydrogen and carbon unite very readily with oxygen; it is a peculiarity of nitrogen, on the contrary, that it interferes with oxidation. Entering into the composition of the tissues of the

body, nitrogen protects them, so that they are not rapidly consumed by the heat of the oxidizing hydrocarbons. The destruction of the tissues is generally slow, and the amount of nitrogenous matter needed for repair is much less than the amount of hydrocarbons needed for fuel. In a healthy diet, that is one in which the supply corresponds to the demand, the heat producers should be more abundant than the albuminoids. In growing children and in convalescents where disease has caused undue waste of substance, the demand for albuminoids is great.

Even in health it is well to know something of the constituents of our food, and what purpose each serves in the economy of nature; and when sickness and its effects upon digestion and nutrition are to be taken into account it becomes worthy of the most careful study. The original meaning of the word nurse was to nourish, and in spite of all secondary meanings that it has acquired the question still remains one of greatest importance. What food to give and when and how to give it are constantly recurring problems of the sick room. In administering food to the sick everything should be the best of its kind, well cooked, palatably seasoned and attractively served. Consult as far as possible the known tastes of the patient, but do not each time ask him what he would like. Something unexpected will often be acceptable, when to have thought about it beforehand would have taken away all appetite for it. Food should never be prepared in the presence of the invalid, nor the smell of cooking food be allowed to reach him, if it is possible to avoid it. The nurse's own meals should never be served in the sick room. It is equally bad for both nurse and invalid.

Rules for Serving—Serve everything as nicely as possible, always with a clean napkin, spotless china and bright silverware and glass. Nothing so easily dulls the appetite as lack of attention to these details. Have the dishes dry on the outside, taking particular care that nothing gets spilled from the cup into the saucer. Have everything intended to be hot, very hot, and those intended to be cold, really cold. More salt and less sugar will generally be wanted than in health. Highly seasoned food is not good or often wished for, but everything should be agreeably flavored and of good quality; eggs above suspicion, milk always sweet and butter fresh. Milk and butter should always be kept

cool and closely covered, for they rapidly absorb the odors of whatever is near them. Before taking food to a patient the nurse should always taste it to see that it is just right, but on no account taste it in his presence or with his spoon. Whatever is not eaten should be at once removed from the room, as to leave it in sight in the hope that a little more of it will be eaten is worse than useless. It is always better to bring too little food than too much.

Quantity of Food—A weak digestion cannot manage a load, but must take a little at a time, correspondingly often. It is not wise to overburden your patient's stomach in your anxiety to make him take plenty of nourishment, for it is not what is swallowed, but what is digested that does him good. When only a small quantity can be retained in the stomach it should be in a highly concentrated form. Where there is nausea and diarrhea, give but little at a time and always cold. Determine how much nourishment the patient should have during twenty-four hours, and dividing it into suitable quantities give it at regular intervals. The importance of regularity in administering food cannot be too much emphasized. If given punctually at fixed hours a habit not only of taking, but digesting it, will soon be acquired, for our most automatic functions are influenced by custom. Only in exceptional cases should the patient be roused from sleep for food, but a supply should be provided for use during the night, as it may be very important to have it at hand. It should be kept cool and covered. Some light nourishment the last thing at night will often help to send the patient to sleep.

Feeding Helpless Patients—In feeding a helpless patient give the food slowly and in small quantities, letting each morsel be fairly swallowed before another is given. See that the head is not turned to either side—even a slight inclination of the head may cause the liquid to run out at the corner of the mouth instead of down his throat. Have his clothes well protected and take pains not to make an external application of the food. Fluid food can, in most cases, be best taken by suction through a bent glass tube, and patients will often take a larger quantity in this way, than they can be induced to take in any other. After feeding always dry the mouth, especially at the corners, if the patient

cannot well do it for himself. The lips often become sore for want of this little care. With fever the thirst is very great. Usually it is quite safe to allow a patient all the water he wants. If not it is worthy of note that a small glass full will be much more satisfactory than the same quantity of water in a larger vessel; this is especially true in the case of children. Slightly bitter or acidulated drinks slake thirst better than water alone. Bits of ice are often very refreshing, and always harmless. They may be easily split off with a pin in the direction of the grain in the ice. Small bits of ice swallowed whole are excellent to control nausea. Ice, to keep well, should be so placed that the water may drain off as fast as it melts. Small pieces may be kept in a piece of flannel in a glass for some time. Fasten the edge of the flannel about the rim of the glass with a rubber band and snip two or three small holes in the flannel so that the water may drain off. A metal spoon in a glass causes the ice to melt rapidly by conducting the heat away from it. A newspaper wrapped around the ice pitcher delays the melting of the ice. Ice to be taken internally must be clean, and not only on the outside. It is a mistake to suppose that all impurities are removed from ice by freezing. It is as necessary to have good ice as it is to have pure water. Pure water should be transparent, sparkling, colorless and odorless, though these characteristics do not prove it to be such. Thus we see that to provide suitable and acceptable food for the sick is a matter which requires care, judgment and ingenuity, but it is well worth the expenditure of them all. The aim should be to give what will be at once easy of digestion and of value after it is digested.

Preparation of Foods—Liquid food is the most easily digested and in severe illness may be relied upon entirely. Meat contains a great deal of nutriment in a small bulk, but is a good deal of a tax upon the digestive organs. Vegetables contain all the food elements, but they include a large proportion of waste material in the shape of indigestible fibrous tissue. The leguminous plants (beans and peas) are rich in albuminoids, the cereals and tubers (potatoes) in starch. Fruits consist largely of water and sugar, with some vegetable acid, and have very little nutritive value. Milk is the only article of diet which contains

within itself all the necessary elements of nutrition in their proper proportions. Tea and coffee are rather stimulants than nutrients. Cocoa and chocolate are quite nutritious, but unfortunately are rather difficult of digestion. Eggs are of high nutritive value, but in them and in most other animal foods the albuminoids predominate. Beef ranks high among the animal foods, but the usefulness of beef tea is very generally overestimated, as the albuminous and most nutritious portion of the meat is left behind in its preparation. It has value, but it is as a stimulant rather than a food. Preparations of beef which have been peptonized, or partially digested outside of the body, are far superior to it. Beef tea is, however, much used, and it may be given either hot or ice cold. Frozen beef juice may sometimes be given when the fluid form is not acceptable to the patient. Animal broths are made from beef, chicken, mutton and veal. The latter is of least value. Mutton makes a good broth, but there is frequent repugnance to it. A meat tea, good by way of variety, is made by using equal quantities of beef, mutton and veal. Meat from which the juice is to be extracted must always be put into cold water first and then gradually heated. It may be allowed to simmer until the meat has quite lost its color, but should never be allowed to reach the boiling point. On the other hand, meat that is to be eaten should in the beginning be exposed to a high temperature, which will coagulate the fibrin near the surface and so prevent the escape of the juices.

Soups for the sick should be allowed to stand until cold, as the fat cannot be perfectly removed while hot, and greasy soup should never be given to a sick person. When required for use heat only to the point where they will be palatable; do not boil them again. Any floating particles of fat remaining can be taken off by wiping over the surface of the soup with a piece of bread. A variety of gruels and porridges are made from oatmeal, Indian meal, arrowroot, rice flour, corn starch, etc. Different crushed cereals already steamcooked may be obtained, and will be found excellent and very convenient, as they take but little time for preparation. Directions for use are supplied with them.

Both oatmeal and Indian meal have a loosening effect upon the bowels, and are consequently objectionable when there is any tendency to diarrhea. In such cases boiled milk is to be pre-

ferred to raw milk. When there is nausea arising from over-acidity of the stomach, lime water may be added to the milk in any proportion up to one-half. If there is also constipation some form of aperient mineral water may be used. Milk may be kept from souring even in warm weather for some little time by adding to each quart of milk fifteen grains of bicarbonate of soda and a little sugar. Koumiss is a very nutritious and somewhat stimulant form of food. The original is prepared in Tartary from mare's or camel's milk, but an excellent imitation may be made by fermenting cow's milk. Directions for making are found on page 112. It is a very valuable food and will sometimes be assimilated when nothing else can be retained. Each quart is said to contain four ounces of solid food.

Sick Room Dietary—*Toast-Water*—Toast three slices stale bread to dark brown, but do not burn. Put into pitcher; pour over them a quart of boiling water; cover closely and let stand on ice until cold; strain. May add wine and sugar.

Rice-Water—Pick over and wash two teaspoons rice; put into granite saucepan with quart of boiling water; simmer two hours, when rice should be softened and partially dissolved; strain, add saltspoon of salt; serve warm or cold. May add sherry or port, two tablespoons.

Gum-Arabic Water—Dissolve ounce of gum-arabic in pint of boiling water; add two tablespoons of sugar, wine-glass of sherry and juice of large lemon; cool, add ice.

Barley Water—Wash two ounces (wineglassful) pearl barley with cold water. Boil five minutes in fresh water; throw both waters away. Pour on two quarts boiling water; boil down to a quart. Flavor with thinly-cut lemon-rind; add sugar to taste; do not strain unless at the patient's request.

Egg-Water—Stir white of two eggs into a half pint ice water without beating; add enough salt or sugar to make palatable.

Flaxseed Tea—Flaxseed, whole, one ounce; white sugar, one ounce (heaping tablespoon); liquorice-root, half ounce (two small sticks); lemon juice, four tablespoons. Pour on these materials two pints boiling water; let stand in hot place four hours; strain off the liquor.

Sterilized Milk—Put the required amount of milk in clean bottles. (If for infants, each bottle holding enough for one feeding). Plug mouths lightly with rubber stoppers; immerse to shoulders in kettle of cold water; boil twenty minutes; or better, steam thirty minutes in ordinary steamer; push stoppers in firmly, cool bottles rapidly and put in refrigerator. Warm each bottle just before using.

Peptonized Milk: Cold Process—In a clean quart bottle put one peptonizing powder (extract of pancreas five grains, bicarbonate of soda fifteen grains) or the contents of one peptonizing tube (Fairchild); add one teacup cold water, shake; add pint of fresh cold milk; shake the mixture again. Place on ice; use when required without subjecting to heat. *Warm Process*—Mix peptonizing powder with water and milk as described above; place bottle in water so hot that the whole hand can be held in it for a minute without discomfort; keep the bottle there ten minutes; then put on ice to check further digestion. Do not heat long enough to render milk bitter.

Milk and Egg—Beat milk with salt to taste; beat white of egg till stiff; add egg to milk and stir.

Peptonized Milk Toast—Over two slices of toast pour gill of peptonized milk (cold process); let stand on the hob for thirty minutes. Serve warm or strain and serve fluid portion alone. Plain light sponge-cake may be similarly digested.

Baked Flour Porridge—Take one pint flour and pack tightly in small muslin bag; throw into boiling water and boil five or six hours; cut off the outer sodden portion, grate the hard core fine; blend thoroughly with a little milk and stir into boiling milk to the desired thickness.

Koumiss—Take ordinary beer-bottle with shifting cork; put in it one pint milk, one-sixth cake of Fleischmann's yeast, or one tablespoon of fresh lager-beer yeast (brewer's), one-half tablespoon white sugar reduced to syrup; shake well and allow to stand in refrigerator two or three days, when it may be used. It will keep there indefinitely if laid on its side. Much waste can be saved by preparing the bottles with ordinary corks wired in position and drawing off the koumiss with a champagne tap.

Wine Whey—Put two pints new milk in saucepan, and stir over clear fire until nearly boiling; then add gill (two wineglass-ful) of sherry, and simmer a quarter of an hour, skimming off curd as it rises. Add a tablespoon more sherry, and skim again for few minutes; strain through coarse muslin. May use two tablespoons lemon-juice instead of wine.

Junket—Take half a pint fresh milk, heated lukewarm; add one teaspoon essence of pepsin and stir just enough to mix. Pour into custard-cups, let stand till firmly curded; serve plain or with sugar and grated nutmeg. May add sherry.

Egg Lemonade—Beat one egg with one tablespoon sugar until very light; stir in three tablespoons cold water and juice of small lemon; fill glass with pounded ice and drink through straw.

Egg-Nog—Scald some new milk by putting it, contained in a jug, into saucepan of boiling water, *but do not allow it to boil*. When cold, beat up fresh egg with a fork in a tumbler with some sugar; beat to a froth, add a dessertspoon of brandy, and fill up tumbler with scalded milk.

Nutritious Coffee—Dissolve a little isinglass or gelatin (Knox) in water, put half an ounce freshly-ground coffee into saucepan with one pint of new milk, which should be nearly boiling before the coffee is added; boil both together for three minutes; clear it by pouring some of it into a cup and dashing it back again; add the isinglass, and leave it to settle on the hob for a few minutes. Beat up an egg in a breakfast-cup, and pour the coffee upon it; if preferred, drink without the egg.

Rum Punch—White sugar, two teaspoons; one egg, stirred and beaten up; warm milk, large wineglass; Jamacia rum, two to four teaspoons; nutmeg.

Champagne Whey—Boil half-pint milk; strain through cheese-cloth; add wineglass of champagne.

Peptonized Oysters—Mince six large or twelve small oysters; add to them, in their own liquor, five grains of extract of pancreas with fifteen grains of bicarbonate of soda (or one Fairchild peptonizing tube). The mixture is then brought to blood-heat, and maintained, with occasional stirring, at that temperature thirty minutes, when one pint milk is added and the temperature

kept up ten to twenty minutes. Finally the mass is brought to boiling-point, strained, and served. Gelatin may be added, and the mixture served cold as a jelly. Cooked tomato, onion, celery, or other flavoring suited to individual taste may be added at beginning of the artificial digestion.

Beef-Tea—Free a pound of lean beef from fat, tendon, cartilage, bone, and vessels; chop up fine, put into a pint of cold water to digest two hours. Simmer on range or stove three hours, *but do not boil*. Make up for water lost, by adding cold water, so that a pint of beef tea represents one pound of beef. Press beef carefully and strain.

Beef-Juice—Cut a thin, juicy steak into pieces one and one-half inches square; brown separately one and one-half minutes on each side before a hot fire; squeeze in a hot lemon-squeezer; flavor with salt and pepper. May add to milk or pour on toast.

Beef-Tea with Acid—One and a half pounds beef (round) cut in small pieces; same quantity of ice, broken small. Let stand in deep vessel twelve hours. Strain thoroughly and forcibly through coarse towel. Boil quickly ten minutes in porcelain vessel. Let cool. Add half teaspoon of acid (or acid phosphate) to the pint.

Mutton Broth—Lean loin of mutton, one and one-half pounds, including bone; water, three pints. Boil gently till tender, throwing in a little salt and onion, according to taste. Pour out broth into basin; when cold skim off fat. Warm up as wanted.

Chicken Broth—Skin, and chop up small, a small chicken or half a large fowl; boil it, bones and all, with a blade of mace, a sprig of parsley, one tablespoon of rice, and a crust of bread, in a quart of water, for an hour, skimming it from time to time. Strain through course colander.

Clam Broth—Wash thoroughly six large clams in shell; put in kettle with one cup water; bring to boil and keep there one minute: the shells open, the water takes up the proper quantity of juice, and the broth is ready to pour off and serve hot.

Cream Soup—Take one quart of good stock (mutton or veal), cut one onion into quarters, slice three potatoes very thin, and put them into the stock with a small piece of mace; boil gently

for an hour; then strain out the onion and mace; the potatoes should, by this time, have dissolved in the stock. Add one pint of milk, mix with a very little corn flour to make it about as thick as cream. A little butter improves it. This soup may be made with milk instead of stock, if a little cream is used.

Apple Soup—Two cups of apple; two cups of water; two teaspoons of corn-starch; one and one-half tablespoons of sugar; one saltspoon of cinnamon and a bit of salt. Stew the apple in the water until it is very soft, then mix together into a smooth paste the corn-starch, sugar, salt, and cinnamon with a little cold water; pour this into the apple and boil for five minutes; strain it and keep hot until ready to serve. May serve with hot buttered sippets.

Raw Meat Diet—Scrape pulp from a good steak, season to taste, smear on thin slices of bread; sear bread slightly and serve as sandwich.

Meat Cure—Procure slice of steak from top of round—fresh meat without fat; cut meat into strips, removing all fat, gristle, etc., with knife. Put meat through mincer at least twice. The pulp must then be well beaten up in roomy saucepan with cold water or skimmed beef tea to consistency of cream. The right proportion is one teaspoon of liquid to eight of pulp; add black pepper and salt to taste; stir mince briskly with wooden spoon the whole time it is cooking, over slow fire or on cool part of covered range till hot through and through and the red color disappears. This requires about one-half hour. When done it should be a soft, smooth, stiff puree of the consistency of a thick paste. Serve hot. Add for first few meals the softly poached white of an egg.

White Celery Soup—To half a pint of strong beef tea add an equal quantity of boiled milk, slightly and evenly thickened with flour. Flavor with celery seeds or pieces of celery, which are to be strained out before serving. Salt to taste.

Oyster Broth—Cut into small pieces a pint of oysters; put them into half a pint of cold water and let them simmer gently for ten minutes over a slow fire. Skim, strain, add salt and pepper.

Rice Soup—Take half a pint of chicken stock and two tablespoonfuls of rice. Let them simmer together for two hours, then

strain and add half a pint of boiling cream and salt to taste. Boil up once and serve hot.

Peptonized Milk—Stir up five grains of pancreatic extract and fifteen grains of bicarbonate of soda in a gill of water; mix thoroughly and add a pint of fresh milk. Put in a bottle or covered jug and let it stand where it will keep warm for an hour. Then put on ice until required for use, or boil it for two or three minutes to stop further digestive action. Milk so prepared will have a faintly bitter flavor or it may be sweetened to taste, or used in punch, gruels, etc., like ordinary milk.

Flour Gruel—Mix a tablespoonful of flour with milk enough to make a smooth paste, and stir it into a quart of boiling milk. Boil it for half an hour, being careful not to let it burn. Salt and strain. This is useful in cases of diarrhea.

Oatmeal Gruel—Boil a tablespoonful of oatmeal in a pint of water for three-quarters of an hour, then put through a strainer. Season with salt. If too thick reduce with boiling water.

Cracker Gruel—Pour a pint of boiling milk over three tablespoonfuls of fine cracker crumbs. Butter crackers are the best to use. Add half a teaspoonful of salt, boil up once all together, and serve at once. Do not sweeten.

Indian Meal Gruel—Mix a scant tablespoonful of Indian meal with a little cold water and stir into a pint of boiling water. Boil for half an hour. Strain and season with salt. Sugar and cream may be added if desired.

Sago Milk—Wash a tablespoonful of pearl sago and soak it over night in four tablespoonfuls of cold water. Put in a double kettle with a quart of milk, and boil till the sago is nearly dissolved. Sweeten to taste and serve either hot or cold.

Treadle Posset—Bring a cupful of milk to the boiling point and stir into it a tablespoonful of molasses. Let it boil up well, strain and serve.

Milk and Albumen—Put into a clean quart bottle a pint of milk, the whites of two eggs and a pinch of salt. Cork and shake hard for five minutes.

Mulled Wine—Into half a cup of boiling water put two teaspoonfuls of broken stick cinnamon and half a dozen whole

cloves. Let them steep for ten minutes and then strain. Beat together until very light two eggs and two tablespoonfuls of sugar and stir on it the spiced water. Pour into this from a height a cupful of sweet wine, boiling hot. Pouring it several times from one pitcher to another will make it light and foamy. Serve hot. The wine should not be boiled in a tin vessel.

Milk Punch—To half a pint of fresh cold milk add two tablespoonfuls of sugar and an ounce of brandy or sherry wine. Stir until the sugar is dissolved.

Syllabub—Dissolve two teaspoonfuls of sugar in a tablespoonful of wine, put it in a pint pitcher and take it to a cow. Milk until the foam reaches the top.

Hot Milk and Water—Boiling water and fresh milk in equal parts compose a drink highly recommended in cases of exhaustion, as it is quickly absorbed into the system with very little digestive effort.

Potus Imperialis—To a quart of boiling water add half an ounce of cream of tartar, the juice of one lemon and two tablespoonfuls of honey or sugar. Let it stand on ice until cold.

Rice Coffee—Parch and grind like coffee a half cupful of rice. Pour over it a quart of boiling water and let stand where it will keep hot for a quarter of an hour, then strain and add boiled milk and sugar. This is nice for children.

Tea—Tea should be made in an earthenware pot, first rinsed with boiling water. Allow a teaspoonful of tea to each half pint of water. Put in tea, and after letting it stand for a few minutes in the steaming pot add boiling water and let it stand where it will keep hot, but not boil, for from three to five minutes.

Coffee—Stir together two tablespoonfuls of freshly ground coffee, four of cold water and half an egg. Pour upon the mixture a pint of boiling water and let it boil for five minutes. Stir down the grounds and let it stand where it will keep hot, but not boil, for five minutes longer. In serving put sugar and cream in the cup first, and pour the coffee upon them.

Chocolate—Scrape fine an ounce of Baker's chocolate, add two tablespoonfuls of sugar and one tablespoonful of hot water; stir over a hot fire for a minute or two until it is smooth and per-

factly dissolved, then pour it into a pint of boiling milk, mix thoroughly and serve at once. If allowed to boil after the chocolate is added to the milk it becomes oily and loses flavor.

ENEMATA OR INJECTIONS INTO THE BOWEL.

The intestinal canal is formed by the folds of a single long tube some twenty-five or thirty feet in length. The part nearest the stomach is called the small intestine. The last five or six feet of the tube is much larger, and hence is called the large intestine. The last few inches of the large intestine is called the rectum, and it is here that the fecal matter collects before being discharged. Enema, or clyster, is a fluid preparation for injection into the rectum. The injection may be used to produce evacuation of the bowels, to administer medicine or as a means of supplying nourishment to the system when for any reason it cannot be given by the stomach. When given for purgative effect they produce the desired result not only by washing out the bowels but by stimulating the contractions of the bowel walls. A small injection often fails where a large one is effective. To an adult should be given from one to four pints; a child requires about half as much, and for an infant from one to two tablespoonfuls will be sufficient.

To Give the Injection—First carefully protect the bed by cloths or rubber sheet, when the injection is to be given while patient is in bed; place the patient upon the left side with the knees drawn up toward the abdomen. Should the rectum be found to be packed with feces it may be necessary to remove a portion of the matter with the fingers before the tube of the syringe can be introduced. Ordinarily the rectum will be found nearly empty, the accumulation being higher up in the bowel. Oil the nozzle of the syringe and insert it very gently upward and slightly backward and toward the left. Under no circumstances use force. See that the end of the tube moves freely in the rectum and is not imbedded in a fecal mass. Give the injection very slowly, as rapid forcing of the fluid into the rectum produces rapid and uncontrollable desire to evacuate the fluid. It is a process about which it is impossible to hurry. If

the patient complains greatly of pain rest a little while, when you can usually go on without trouble. A folded towel placed around the tube and pressed upon by two or three fingers will enable you to support the anus. After the desired amount of fluid has been injected the tube may be gently removed and gentle pressure continued on the rectum for some minutes. The patient should keep perfectly quiet for ten or fifteen minutes. Then the bowels can be allowed to move, usually with satisfactory results.

Material to be Used for Purgative Enema—Water alone may be used, or something more stimulating may be called for. Various medicaments may be added, such as soap, salt, olive oil, castor oil, oxgall, etc. Soapsuds are excellent and convenient, or to the soapsuds a couple of ounces of sweet oil and half an ounce of of turpentine may be added. An injection of olive or sweet oil, four to six ounces, may be given half an hour before one of water and allowed to remain to soften the fecal mass. The oil should first be warmed so as to pass readily through the syringe. As to the best temperature for purgative enema authorities differ. Hot or cold water will naturally excite the intestines to more vigorous action than water at the same temperature of the body. Either may be used without inconvenience to the patient. The daily injection of a pint of cold water is often beneficial in the case of bleeding piles, attended by constipation. The habitual use of large purgative injections is to be discouraged, as they cause undue distention of the bowel and lead to a somewhat torpid condition.

Where there is an irritable condition of the mucous membrane of the bowel an injection of a more soothing nature may be used. Thin gruel is often used, or a decoction of flaxseed, starch, or barley water. Soothing injections should always be warm. A cold injection of clear water is sometimes given to reduce febrile temperature. Injections of ice water may be given to check hemorrhage from the bowels. An injection of water containing salt, two tablespoonfuls to the pint, or carbolic acid, two teaspoonfuls to the pint, will destroy worms in the rectum. An injection of starch, thin enough to pass readily through the syringe, to which has been added from ten to twenty drops of laudanum to two fluid ounces of the starch is sometimes used to check excess-

ive diarrhea. This may be used after each movement of the bowels, or it may be given at regular intervals.

When medicines are given for the relief of pain in the region of the pelvis, it should be remembered that it takes as a rule one-third larger dose to produce the same effect as that produced by giving the medicine by the mouth. Any rectal injection which it is intended shall be retained must be given very slowly, not more than four tablespoonfuls at a time, and at a temperature not less than 100° F. The patient must be quiet for at least half an hour after the injection is administered. The best instrument for giving such an injection is a large hard rubber piston syringe which holds about four ounces.

Administering Nourishment by Injection—The above directions apply especially to nutrient injections, which are used when sufficient food cannot be taken or disposed of by the stomach. The possibility of supplying nourishment in this way is often the means of saving life. Any highly concentrated food in liquid form, such as milk, beef tea, whipped eggs, etc., may be given. A variety will be better than the use of one kind of food exclusively. A useful mixture is three tablespoonfuls of beef tea, half a tablespoonful of brandy, and one tablespoonful of sweet cream. Brandy is a valuable stimulant given in this way, but as it is quite irritating it cannot be long continued unless it is mixed with some soothing material such as flaxseed tea. Since food given by the rectum does not go through the regular digestive process, it must, in order that it may be easily digested, be subjected to artificial digestion; hence pepsin or pancreatic extract is commonly added to it. The solutions to be injected should be slightly acid, as they are then absorbed more rapidly. These injections must not be given too frequently, or the rectum will refuse to retain them, as it is not very tolerant of foreign matter. Once in five hours is often enough, and four tablespoonfuls the maximum quantity at one time. If the rectum will not retain that much try one, two or three tablespoonfuls at a time. Before giving nourishing injections it is important to learn whether or not the rectum contains fecal matter. If it is not found empty it will be necessary to give a purgative injection first. After using a syringe, clean it by letting plenty of warm water run

through it, wipe it dry on the outside and hang it up so that all water will drain out. Never put it away in the box wet.

Bed pans are very important adjuncts to the sick room. They are made of crockeryware or enameled papier mache.

Vaginal Douche—In the case of female patients this is often very necessary. When given for cleanliness alone it should be of simple tepid water or water in which two to four tablets of No. 3 have been dissolved in each pint of the solution. The use of a very hot douche is very valuable in relieving pain and inflammation about the pelvic tissues. At first there is an increase in the congestion, but a continued application of the hot water causes a secondary and more or less lasting contraction of the blood vessels. The hot douche is also an excellent method of controlling capillary bleeding, where the blood oozes out from over a large surface. It also favors contraction of the uterus. In giving the vaginal douche the patient should lie on the back with the hips elevated. A douche taken in this position is much more beneficial than one taken in the sitting or standing position. The fountain syringe should be suspended or held at a considerable height, so as to insure a good flow. The nozzle of the syringe should be carefully passed along the back wall of the vagina until it reaches a point behind the neck of the womb; then the clamp on the tube may be released and the water be slowly injected. For hot douches, have the water at first at a temperature of 100° F.; after allowing it to run for a minute, rapidly increase the temperature by the addition of hot water up to 110° or over. Should any medication be desired in the douche it should be added to the last quart of water. The hot douche may be continued for fifteen or twenty minutes. In giving a douche in the prone position, a bed pan with an overflow pipe is needed. Should this not be obtainable the patient's position may be shifted so that the hips shall rest on several folds of a blanket placed on the edge of the bed, over which a rubber sheet has been placed, and so arranged that the flow of water shall be conducted into a vessel placed upon the floor. The patient's feet may be supported upon two chairs placed beside the bed two feet apart. Care must be taken in administering the hot douche that the mucous membrane of the vagina is not blistered by the hot tube. For this reason the hard rubber nozzle is preferable

to the metal nozzle. Sometimes the hot douche may be administered in the rectum, with the idea that the heat can be more directly applied to the diseased tissues than through the vagina. The water in this case must be allowed to escape from the anus by the side of the tube.

COUNTER IRRITANTS.

These remedies are used locally to relieve inflammation of the deeper parts by drawing the circulating fluid and nervous energy to the surface. There are two distinct classes of them; first, rubefacients, which produce merely local warmth and redness; and second, vesicants, or blistering agents. There is still a third class which produce a pustular eruption over the surface to which they are applied. Croton oil is the chief of this class.

Counter irritants are usually applied over or near the seat of the disease, but occasionally they may be used at some remote part to obtain what is called revulsive action. In this way mustard poultices on the feet or a mustard footbath may be employed for the relief of the head.

Rubefacients—Mild counter irritation results from hot fomentations and poultices and from the various ammonia and camphor liniments. One of the most commonly used rubefacients is mustard.

The Mustard Plaster—To make a mustard plaster take one part of powdered mustard and from two to five times the quantity of flour, according to the strength desired. Mix into a paste with tepid water and spread it evenly between two pieces of muslin. The plaster should not be left on too long or it will cause painful blisters which are slow to heal. From twenty minutes to half an hour is generally long enough. With an insensible or delirious patient, they must be carefully watched, for if neglected, deep ulceration may ensue. For a child mix with glycerine and water, instead of pure water, as the action will be less severe and it can remain on longer. The plaster should be held in place with a bandage. The burning sensation which follows the use

of a mustard plaster may be relieved, if severe, by dusting the part with talcum powder found in the Cabinet. The mustard leaves found in the Cabinet will be found exceedingly useful and reliable and may be used in all cases calling for a counter-irritant.

Cayenne Pepper Plasters—The cayenne pepper plaster is made by mixing a tablespoonful of cayenne into a thin paste of flour and water. Or a quantity of red pepper may be stitched into a bag and wrung out in warm water and applied over the seat of pain.

Vesicants—Some form of cantharides (Spanish fly) is most commonly used to produce blisters, either in the form of a plaster or, better still, the fluid form known as "Acetic Cantharidal Blistering Fluid." Where a blister is desired a piece of cotton twisted on the end of a match or toothpick to form a brush is dipped in the fluid and, after squeezing out the excess of fluid against the mouth of the bottle, a surface about the size of a silver quarter of a dollar is lightly painted over. The fluid rapidly evaporates, and after a few minutes the surface can be again painted. Generally two applications will be sufficient to produce a blister in from a half hour to two hours, depending upon the character of the skin. After the blister has formed it may either be allowed to break of its own accord or it may be pricked at its lowest point and the fluid drawn off. Where greater effect is desired the skin may be removed from the site of the blister and the surface left open, and as it heals reapply the blistering fluid. The stronger tincture of iodine is used for the same purpose as cantharides, but is much milder, and several coats are usually required to produce a blister. If the iodine burns too severely it may be washed off with ammonia or alcohol.

When it is desired to produce a blister very quickly, stronger ammonia or chloroform is used. A small piece of cotton is saturated with it and placed upon the skin, its evaporation being prevented by covering tightly with a watch glass or a pill box. A blister may thus be raised in five or ten minutes. This method is always painful.

Croton Oil—Croton oil is used by applying a very small quantity to the surface with a camel's hair pencil every four or five hours until eruption appears.

POULTICES.

Poultices are a common method of applying warmth and moisture. Their effect is to soften the tissues and dilate the capillaries, relaxing the tension of the inflamed parts and so relieving pain. Applied early they may check the progress of the inflammation and prevent the formation of pus; when suppuration has set in they facilitate the passage of the matter to the surface and limit the spread of the inflammation. They are useful not only when in direct contact with inflamed tissue, but will often relieve deep seated pain. A poultice applied for the relief of internal organs should be large enough to extend over a considerable surrounding surface, but over a suppurating wound, should be but little larger than the opening. Apply as hot as can be comfortably borne, but do not burn the patient. After the poultice is in place cover with oiled muslin or rubber tissue to keep in the heat and change the poultice frequently, the length of time it should remain on depending upon the thickness of the poultice. One of ordinary size will keep warm for three or four hours. If the poultice be allowed to become cold and hard it will do more harm than good. When the poulticing is continued too long the skin may develop an eruption.

Methods of Making Poultices—Poultices are made of various materials. The simplest form consists of several thicknesses of soft cloth wrung out of hot water.

Linseed Poultice—Linseed meal is very commonly used, and when of good quality is an excellent material. To make a linseed poultice bring a saucepan of water to the boiling point and then without removing from the stove stir into it the meal little by little until it has the proper consistency—just thick enough to be cut with a knife. It should be smooth and free from lumps. The poultice should be spread evenly about a quarter of an inch thick upon a piece of muslin previously cut to the desired size, leaving an inch and a half margin in each direction. The poultice should not be applied directly to the skin, as portions of it adhere, and it is difficult to remove. The poultice may be covered over with a large layer of cotton batting; this will help retain the

heat, and the poultice need not be made so thick. The poultice jacket is described in the section on pneumonia or lung fever.

Bread Poultices—Bread poultices are light and more bland than linseed, but cool quickly and hold less moisture. They do not have the tenacious quality of linseed, and they are likely to crumble and become rough when dry. Milk should never be used in the preparation of a poultice, as it has no advantage over water, and it very soon becomes sour and offensive. Pour boiling water over slices of bread without the crust. Let it simmer a few minutes until well soaked, then drain off the water, beat up the bread quickly with a fork and spread over the muslin in the same manner as in making a linseed poultice.

Charcoal Poultice—As bread is more porous than linseed, it forms a better basis for the charcoal poultice. The formula is: Fresh wood charcoal powder, one-half ounce; bread crumbs, two ounces; linseed meal, one and a one-half ounces; boiling water ten ounces. Mix half the charcoal into the poultice and sprinkle the rest over its surface. It is used for putrid sores.

Yeast Poultice—The yeast poultice is used mainly to hasten the separation of gangrenous sloughs. Mix six ounces of yeast with the same quantity of water at blood heat. Stir in fourteen ounces of flour and let it stand near the fire until it rises. Apply while fermenting.

Slippery Elm Poultice—The slippery elm poultice is made by using one part of powdered slippery elm to two parts of linseed meal. It is very light and soothing.

Hop and Bran Poultices—A hop poultice is a thin bag loosely filled with hops and wrung out of hot water. Bran is treated in the same way. A bran jacket may be made in the same manner as the linseed jacket and has the advantage that it may be re-wet and used again and again. It needs to be stitched through and through, as well as around the edges, to keep the bran in place.

Spice Poultice—The spice poultice is made by mixing ginger, cinnamon, cloves and cayenne pepper, a teaspoonful of each, with half a tablespoonful of flour, and brandy enough to make a paste. The same effect, that of a mild counter irritant, may be produced by sewing the spices into a flat bag to be dipped into whiskey or brandy when required for use.

Mustard Poultice—The mustard poultice is made by the addition of from one-eighth to one-fourth as much mustard as is used of linseed meal to make the ordinary linseed meal poultice.

Hot Fomentations—Fomentations are poultices in a modified form. They are made by the application of hot water, pure or medicated, by means of pieces of flannel or cloth. They have the advantage of being clean, light and quickly prepared; but they require constant attention, needing to be changed every few minutes. Two pieces of flannel should be at hand, each doubled to the required size. They are called stupes. They are to be saturated with boiling water and then wrung out as dry as possible. A stupe wringer, made from a piece of stout toweling with a stick run through the hem at either end is a very convenient appliance. Place the stupe in the middle of the towel, saturate with boiling water, and twist the sticks in the opposite direction until no more water can be squeezed out. A stupe cool enough to wring out by hand is too cool to be of much use. It should be dry enough not to wet the bed or clothing. Have another all ready to apply before removing the first. There should be two layers of flannel, shake these apart lightly to let the air in between them and they will keep hot longer. After the stupe is in place cover with oiled muslin and over that a layer of cotton or a piece of dry flannel. The stupe should never be allowed to become cold. After the fomentations have been stopped dry the part carefully and keep covered with a piece of dry flannel. The chief use of stupes is to relieve spasm of the internal organs. They may be made irritant or sedative by the addition of appropriate medicaments. Twenty or thirty drops of turpentine or laudanum may be sprinkled over each stupe or it may be steeped, instead of in pure water, in some decoction such as poppy heads, hops or chamomile flowers. A good stupe for children is Jamaica ginger one part, paregoric one part and hot water eight parts. In using turpentine there is some danger of blistering the skin, and any sore which may be present must first be covered by some impervious dressing, such as oiled muslin.

Dry Fomentations—Dry fomentations are sometimes used when it is desirable to avoid relaxation of the superficial tissues. Dry heat is best applied by the hot water bottle. Dry flannels may

be placed in the oven until hot and then applied. Thin bags of heated sand, salt, bran or hops, hot bricks, etc., all come under this head. Hot water bottles should always be wrapped in flannel.

Cold Applications—These are chiefly used to subdue inflammation. They are to be used only in the earliest and latest stages, never while pus is forming or during sloughing, as they lower the vitality of the tissues and lessen their powers of resistance. To be of any use they must be kept cold, and confined to a limited space. If the cold applications are begun and then stopped the inflammation will be more severe than if they had never been started. The simplest method of applying cold is by pieces of muslin wet in ice water and changed for fresh ones before they get warm. This calls for constant attention. A steady cold stream may be kept over the part by carrying across it long strips of lamp wicking, having one end in a pitcher of ice water standing a little higher than the bed and the other end leading to a basin below it. The bed must be well protected and in all cases where applications of water are used care must be taken that neither the bed nor the patient's clothing get wet. Coils of rubber tubing through which cold water is made to flow, is the best means of applying cold. Ice is best applied in a rubber bag. These are made in different shapes to fit various parts of the body. The bag should not be more than half filled with bits of ice less than an inch square, which should be renewed before the last bit is melted. The ice will keep longer if mixed with one-third saw dust. A piece of muslin should be placed between the ice bag and the skin.

Lotions—Lotions which evaporate must be left uncovered. A single thickness of lint, or two or three thicknesses of muslin may be used and frequently wet with the lotion. Alcohol, vinegar or muriate of ammonia may be used for the lotion. Those which are not intended to evaporate are put on several thicknesses of lint or muslin, laid over the affected parts, and closely covered with oiled muslin or rubber tissue. The lint can be re-wet without taking it off by pouring some of the lotion over it. Eye lotions should be introduced at the outer angle of the eye with a glass dropper, or a small camel's hair brush, that is used for nothing else. Draw down the lower lid, and instruct the patient to look up at the instant the drops are introduced.

Liniments—Liniments differ from lotions in their mode of application, being rubbed in until the part is dry.

Ointments—Ointments are either spread upon cloth the exact size required, or are rubbed in like liniments. The rubbing in of ointments is called inunction.

Gargles—The interior of the throat is often treated by gargles. In using a gargle the head is thrown back and the fluid comes in contact with the tonsils and soft palate, and is forcibly agitated by air from the larynx. About a tablespoonful at a time should be used, four or five times successively. After using a gargle containing an acid or tincture of iron the mouth should be well rinsed with some alkaline solution, as soda or lime water, to prevent injury to the teeth.

BATHS.

The Skin—The skin is not only a protective covering for the body, but also a complex excretory organ, doing as important a work in eliminating waste products as the lungs and kidneys. It consists of two distinct layers, the dermis or true skin underneath and the epidermis, cuticle, or scarf-skin on the outside. The true skin is filled with blood vessels and nerves; the cuticle contains none of these, but is connected with them by numbers of small tubes connected with the sweat glands and sebaceous glands. The surface of the body is covered over by the openings of these tubes, known as pores. From these pores water and excrementitious matters are constantly being thrown off in the form of vapor. By this steady evaporation the temperature of the body is regulated. If the body be covered by an impermeable coating so as to entirely obstruct this process death quickly ensues. The scarf-skin is continually scaling off and being renewed from underneath. At the same time solid matters are to some extent deposited, as the water evaporates from the sweat ducts. Besides the sweat glands there is another set of glands in the skin called the sebaceous glands, secreting a kind of oily matter, which serves to keep the skin soft and supple. The excess of this sebaceous matter, the cast-off scales of the cuticle and the solid deposit from

the perspiration remain on the surface, and unless removed fill the pores and prevent further evaporation. Thus even in a state of health frequent and thorough bathing is a matter of first importance. Dirt of any kind blocks the mouths of the sweat-bearing tubes and impedes their action. This throws more work on the excretory organs, disturbing the balance of their functions, so that disease may often be traced simply to a failure to keep the pores of the skin open. The bath in sickness is even more necessary than in health, for the exhalations of disease are morbid and dangerous. Notwithstanding this fact the bath is often neglected in sickness through fear that the patient will take cold. But cleanliness is a positive aid to recovery, and with proper precautions there are very few patients who cannot be washed without danger. In almost all cases at least a sponge bath can be given in bed, care being taken neither to chill nor fatigue the patient.

Method of Giving the Bath—In giving a sponge bath in the bed the bedding must be protected by a rubber sheet and another sheet over that. The room should be warm and free from draughts, and everything likely to be needed at hand—plenty of hot and cold water, soap, sponges, towels, clean clothing, etc. Take plenty of time and expose only a part of the body at a time, and wash, dry and cover it before proceeding further. After the bath some light refreshment may be allowed, if the patient seems at all fatigued. A bath should never be given within two hours after a full meal.

Changing the Clothing—The clothing should always be warmed before it is put on. To change a night dress or shirt slip off the sleeves of the soiled one, and pull it up toward the neck. Then put the arms in the clean sleeves, lift the patient's head and shoulders and the soiled garment can be pulled off with the same motion that puts the clean one on. Pull the clean one down under the back smoothly, but not too tight. In this way the patient has only been raised once. If the patient should not be raised at all the shirt or gown must be slit all the way down the front. In taking it off slip one arm out of the sleeve and put on the corresponding clean sleeve, work it under the shoulders, pushing the soiled one before it, and change the other sleeve. If two

garments are worn fit one inside the other before beginning and put them on as one

Care of the Mouth—The mouth should be often washed and the teeth brushed or wiped with a bit of soft cloth. Water containing a few drops of tincture of myrrh or a solution made by dissolving two tablets of No. 3 in a teacup of water, may be used for rinsing the mouth. To remove the accumulated matter on the teeth a mixture of lemon juice, glycerine and ice water will be found very efficacious.

Combing the Hair—In the case of female patients this is a very important matter. Begin at the ends, holding the hair firmly at the roots, to avoid pulling and to keep the head steady. Often, especially if the hair has become matted, it is best to cut it off short, though with time and patience very bad tangles can be straightened out. A good nurse will never allow the hair to get tangled. The hair should be tightly braided or else twisted on top of the head, so that the patient will not have to lie on the knot. The hair should be combed, the teeth cleaned and the hands and face washed at least once daily, the feet twice and the whole body every week. This applies to every patient.

Remedial Baths—Baths are used for remedial purposes as well as for cleanliness. They may be general or local, simple or medicated, cold, tepid, or hot; in the form of liquid, vapor or air. Judiciously used, baths are valuable remedies, but their careless or inappropriate use, as is true of all powerful remedies, may be hurtful rather than helpful. The effect of the bath on the patient should always be carefully noted. Baths may be classified as follows:

	Degrees.	Degrees.
Cold,	33	65 Fahr.
Cool,	65	75
Temperate,	75	85
Tepid,	85	92
Warm,	92	98
Hot,	98	112

To put a feeble patient in a bath wrap him in a sheet and lower gently into the water. Have a warm dry sheet ready to wrap him in when he leaves the bath. After wrapping him in the

dry sheet fold a blanket around him, and putting him in bed allow him to be quiet for a few minutes. In this way he will be made dry without extra fatigue. A few long strokes with a soft towel will then dry him thoroughly, and the wrappings may then be removed. If the bath is to be soon repeated it is better not to put on the clothes, but to leave the patient folded in the dry sheet ready for the next plunge.

Cold Baths—Cold baths are employed either to produce reaction, nervous shock or to reduce temperature. Cold water abstracts heat from the body and affects the internal organs through the nervous system. Upon first entering a cold bath there is experienced a sense of chilliness and depression. The pulse is quickened, but the temperature of the surface is lowered and the blood accumulates in the internal organs. A condition of reaction soon follows, with invigorated circulation, a feeling of warmth and exhilaration; but if the bath be continued too long the coldness returns, with weakness of the pulse and general depression. A cold bath should not be given when the patient feels chilly, when there is free perspiration, when there is any inflammation or tendency to congestion of the internal organs, or during menstruation. If shivering comes on during a cold bath the patient should at once be taken out and put to bed, heat applied and stimulants given if the shivering continues. The cold bath is sometimes used as a tonic in cases of debility, but there must be a certain amount of vigor present to render it endurable. For this purpose it is best taken in the morning, and should be at once followed by vigorous rubbing and gentle exercise. The head must be submerged first and the bath continued only long enough to produce reaction—not more than five minutes. The colder the water, the sooner the reaction takes place. After any soothing bath the patient should be kept quiet; after a stimulating bath brisk friction and exercise are called for.

Cold Bath for Relief of Temperature—The cold bath is a most speedy and effective way of bringing down high temperature. It may be lowered from one to five or six degrees. The shock of sudden immersion in cold water may be avoided by beginning with the tepid bath and gradually cooling as much as desired by adding cold water or ice. The temperature of the body must be

taken in the rectum and the patient removed from the bath before it has reached the desired point, for the temperature will continue to fall for some time afterward, until the heat of the interior and exterior of the body becomes equalized.

The Wet Pack—Another method of applying cold for the reduction of temperature is the wet pack. To prepare for this, first put three or four blankets on the bed, over these a sheet wrung out in cold water. Let the patient lie on this and fold the sheet over him, tucking it in well on both sides from the neck to the ankles, but not around the feet. The blankets are then folded over him one by one, and the patient left in them from thirty minutes to two or three hours, as may be needed. Give plenty of water to drink, and keep the feet warm. This form of bath will usually be very comfortable to the patient and he will often fall asleep while in the pack. It will render the skin moist, subdue the restlessness and delirium and reduce the fever. When the pack is removed dry off the patient quickly and wrap him in warm, dry blankets for some hours. The same effect may be produced by applying towels wrung out in ice water, dry enough not to drip, one after another from the neck downward. When the feet are reached begin over again at the head and renew each in succession continuing as long as is necessary.

Sponge Bath—Cold or tepid sponging often gives relief to a feverish condition. Sponge downwards always, and wrap the patient still wet in a warm blanket and leave him undisturbed for an hour or two. Alcohol added to the water makes it more cooling by its rapid evaporation, or the alcohol alone may be used for sponging, after which do not dry the patient.

The Hot Bath—A general warm or hot bath is used to produce perspiration, soothe pain and relax spasm. The effect of warm or hot water is at first agreeable. Elimination of waste matter from the lungs and through the skin is increased, and the circulation accelerated. A very hot bath excites and stimulates the nervous system, while a warm or tepid bath rather calms and soothes it. If the water is too hot or the bath too long continued languor, giddiness or faintness may result. Keep the head cool and out of the hot water. An invalid should never be left alone in the water and must be taken out at once if any sign of faintness appears. art, and consists of all that pertains to the knowledge and preven-

A hot bath should not be given during the menstrual period nor during the last stage of pregnancy. Immersion in water as hot as can be borne is useful in sprains during their earliest stage.

The Foot Bath—This is usually given to relieve the head and should be given as hot as possible. If the patient is able to sit up in a chair see that he is warmly wrapped up and a blanket should cover both the patient and the tub. Let the water come nearly to the knees. Adding mustard to the water will increase the effect. The foot bath can be given in bed when necessary. Have the bed well protected, turn up the clothes from the foot of the bed, direct the patient to lie upon the back, and bend the knees, when the feet can be placed in a bowl of water. Have the bowl firmly balanced, cover with a blanket, and let the feet remain from a quarter to half an hour, keeping the water hot in the meantime. Then dry them well and either wrap in flannel or put on woolen stockings.

The Sitz or Hip Bath—Immerse the patient in hot water from the waist to the knees and cover with blankets. The water should be kept hot and the bath continued for twenty minutes. The object of this form of bath is to excite the menstrual flow, and it should be given as nearly as can be calculated at the time when the flow would naturally appear.

Hot Air and Vapor Baths—Where the patient is not able to leave the bed, this form of bath may be employed by using hot bricks wrapped in wet flannel. The bedclothes must be lifted above the patient and supported by a "cradle" or a stout string stretched from one corner of the bed diagonally across to the other corner. The patient is first sponged off with tepid water until there is free perspiration. The hot bricks are then introduced under the bedclothing, and the blankets are then tucked in so as to render the space as nearly air tight as possible. When the patient can leave the bed the best method of employing the hot air or vapor bath is by the use of the Bath Cabinet. When the bath cabinet cannot be obtained the following is a fair substitute: let the patient, entirely without clothing, sit in a wicker chair, with the feet on a low stool. Cover him with several blankets, and under the chair place a spirit lamp, with a large wick, or a small oil stove. As the heat increases, let the

patient drink freely of water until perspiration becomes profuse, then place him in a general bath at a temperature of 75° to 80°, and add cold water to the bath until it becomes cool. Remove patient and dry thoroughly; keep him warm afterwards.

Medicated Baths—Both liquid and vapor baths may be medicated. Remedial agents may be vaporized in the bath cabinet and will be readily taken up by the skin. An acid vapor may be produced by evaporating vinegar.

Acid Bath—Nitric acid, one and one-half fluid ounces; hydrochloric acid, one to three ounces; warm water, thirty quarts. This should be given in a wooden tub.

Alkaline Bath—Add half a pound of carbonate of soda to fifteen gallons of hot water.

Sulphur Bath—A sulphur bath is prepared by adding to each gallon of water twenty grains of sulphuret of potassium. This must be given in a wooden or porcelain lined vessel, as the sulphur will discolor most metals. This form of bath may be beneficial in rheumatism and also some forms of skin disease, but in this case not usually until the acute stage has passed, as it tends to aggravate the rash. In all cases of skin disease rain water should be used; or if this is not obtainable soften the hard water by the addition of soda, borax, bran, starch or gelatine. The skin should not be rubbed in skin disease, but dabbed dry with soft towels.

Bran Bath—To make a bran bath boil a pound of bran for a quarter of an hour, strain off the fluid and add it to the bath water. Bran is sometimes added without boiling to the bath water, but this must not be done in a stationary tub, for the bran will clog up the drain pipes.

Starch Bath—Take half a pound of starch and mix it with two quarts of water before adding it to the bath.

Salt Bath—A salt bath is usually given cold for tonic effect. Either sea salt may be used or a solution of rock salt in the proportion of one pound of salt to four gallons of water.

MASSAGE.

Massage is, in the hands of a skilled operator, a valuable mode of treatment, though it has fallen into some disrepute by being allowed to pass largely into the hands of "quacks," so-called "magnetic healers" and others of that class, whose pretensions have degraded everything connected with them. Massage, in its proper place, however, has so much of value that we here give a few of the scientific principles upon which it is based, and suggest certain conditions in which benefit may be obtained from its use. Massage will to a considerable extent take the place of active exercise, keeping the muscles strong and supple. It develops heat at the points of contact, elevating the general temperature and dilating the blood vessels. It furthers absorption, accelerating the motion of the blood currents, removing waste matters, and thereby promoting nutrition. It has a sedative effect upon the nerves, though in some instances it seems to excite rather than to soothe. Insomnia and neuralgia can often be relieved by it, and irritation of the spine to some extent controlled. In the treatment of nervous disorders it is often combined with rest, strict regulation of the diet and the application of electricity. The best results from its use are found in chronic joint affections, and thickenings from inflammatory deposits.

Methods of Applying Massage—Massage consists of a peculiar kneading of the underlying muscles, and is entirely distinct from friction, which touches only the external tissues, but it is often combined with friction; also with the "Swedish movements," active and passive. The word, then, as commonly used may be understood to embrace all forms of manipulation. The performance of massage requires the use of hands that are at once strong and soft, the motions smooth and even, never jerky. The work should be done from the wrists and not from the shoulders, and you want equal flexibility and freedom of action in both hands. All movements should begin slowly and gently, and their force and frequency gradually increased. A very tender spot can hardly be touched at first, but after a little skillful handling an amount of force can be employed which would have seemed

incredible. The whole hand, and not merely the ends of the fingers should be used. In massage proper the work is chiefly performed by the ball of the thumb and the palm of the hand. Each muscle is kneaded and rolled with a carefully graded force. Begin at the extremities and work toward the trunk. If the feet are cold keep at them until they are quite warm before going on. Take up each group of muscles systematically, compress, roll and relax, advancing by degrees, so that each handful of muscle may include part of what has been previously treated. Never stretch the tissues in the opposite directions at the same time.

Skill in massage and manipulation can only be attained by long practice and careful observance of the rules and principles above mentioned, but that skill once gained will be found of great value in the treatment of many forms of disease.

Friction—Friction should act only upon the skin. If counter-irritation is desired a coarse towel or a brush is better than the hand. Friction should be toward the center of circulation, to assist the venous currents. Thus on a limb the heaviest strokes should be upward and the returning ones much lighter.

Passive Motions—Passive motions are made without any effort on the part of the patient. When there is partial control on the part of the patient of the muscular action the operator either helps or hinders the effort of the patient, being careful not to overtax his little strength, and the exercises are then known as assistive or resistive. Such movements are applied together with massage to strengthen weakened muscles and break up adhesions in diseased or stiffened joints. Care must be taken, however, not to overdo this form of exercise.

THE URINE.

The kidneys form the chief channel for the elimination of the waste matters from the body. These are two bean-shaped bodies, each about four inches long, lying in the small of the back, one on either side of the spine. The urine as it is excreted by the kidneys passes through two connecting tubes, the ureters, into the

bladder, whence it is periodically discharged through another tube, the urethra. The capacity of the bladder when fully distended is about three pints. The urethra in the adult female is an inch and a half or two inches in length.

Urine, in a healthy condition, consists of some 960 parts water to 40 parts of solid matter, principally urea, the chief waste product of animal life. The average quantity of urine passed in twenty-four hours is two and a half pints, or forty fluid ounces. This will contain 450 to 600 grains of urea, besides a small proportion of uric acid, and various phosphates, urates and chlorides. The urine is transparent, of pale amber color, having a characteristic aroma, an acid reaction and a specific gravity of about 1.02.

Variations of Urine in Health—There may be considerable variation from the above description, even strictly within the limits of health. The quantity will vary in proportion to the amount of fluid taken into the system, and to the activity of the skin. Where there is free perspiration there is left less water to be carried off by the kidneys, and consequently, the urine is less abundant, darker in color, and of greater specific gravity, owing to the increased proportion of solid matters. The specific gravity may vary from 1.01 to 1.025 without indicating any departure from health. The reaction may for a time become neutral or even alkaline after a meal, owing to the character of the food taken. Cloudiness of the urine may be due to the presence of earthy phosphates, or to mixed urates of sodium, potassium, calcium and magnesium, or to mucus from the bladder or urethra.

Variations of Urine in Disease—The same causes of variation may exist to an extreme degree in sickness. The quantity passed in twenty-four hours may be diminished to two ounces or increased to 200 ounces. The color may be affected either by diminution of the normal coloring matters or by the addition of abnormal ones. Opacity may be caused by the presence of pus. Blood gives a characteristic smoke hue to acid urine; when the urine is alkaline the color is more nearly red. Urine containing blood enough to be readily recognizable as such probably contains albumin also. Bile gives a greenish tinge that is often seen with jaundice. In some cases a sufficient amount of fat may be found to give the urine a distinctly viscid or glutinous consist-

ency. In hysteria, alcoholism, anemia and convalescence from acute diseases, the urine may be expected to be pale and abundant. In the early stage of acute fever the specific gravity is likely to be high, as a large amount of solid matter is excreted. Lowered specific gravity is most significant when it is accompanied by diminished quantity of urine. In diabetes mellitus the specific gravity of the urine may be as high as 1.05, while at the same time the quantity passed may be largely increased; this is due to the presence of large quantities of sugar. In the disease known as diabetes insipidus, or polyuria, the urine is very abundant in quantity and of a pale color, but it contains no sugar or albumin, and is of low specific gravity.

Effect of Drugs on the Urine—Certain drugs produce special effects upon the character of the urine. Turpentine taken internally gives to the urine an odor resembling that of violets. It may increase the flow or possibly cause retention. Spanish fly may also cause retention, or slow and painful passage of the urine. Dark smoky urine is one of the early symptoms of poisoning by carbolic acid or iodoform. Santonin gives a bright yellow color; rhubarb or senna a reddish yellow; cubebs, copaiba, and sandalwood oil, each imparts its peculiar odor. Medicines which increase the quantity of urine are called diuretics.

Value of Observations of Urine—From the foregoing remarks it will be seen that the character of the urine and its quantity may furnish invaluable information of the development and progress of disease, and it follows that those who have the care of the sick intrusted to them should have some knowledge of the methods of making the simpler observations and tests of the urine.

Methods of Observing the Urine—The observers should note, first, the frequency of micturition, or passing of water; second, the quantity passed each time and the total amount in twenty-four hours; and third, any evident peculiarity. If urine is passed frequently, but in small quantity each time, it indicates either an over-distended condition of the bladder or irritation of the bladder or urethra. The distinction between the two conditions can usually be made by carefully examining the urine to see

whether it contains mucus or pus, or possibly blood. If so the bladder or urethra is the seat of inflammation. If the urine is clear, careful inspection of the lower portion of the abdomen and gentle tapping over the location of the bladder will indicate whether or not it is distended. The total amount of urine passed in twenty-four hours can be ascertained by saving the whole quantity and then measuring, or the amount passed each time may be noted and the sum of such amounts will give the total for the twenty-four hours.

To note any peculiarities of the urine a small quantity should be placed in a tall narrow glass, or test tube, and by holding up to the light its appearance can be noted and any evident departure from the normal may be detected. After such examination the specimen should be allowed to stand for several hours and then re-examined for any subsequent deposit or sediment. Remember to have the glass perfectly clean before placing the urine in it. The chemical reaction of the urine may be tested with litmus paper; if acid the urine will turn the blue paper red; if alkaline it will turn the red to blue; if neutral it will have no effect upon either the blue or red paper.

Urine having an acid or neutral reaction may turn alkaline after standing, but that which is alkaline in the beginning never becomes acid.

Foreign matters in the urine may be either sediment, or in solution. The most common sediment is composed of urates and phosphates. They fall as a white or pink deposit at the bottom of the vessel after the urine has stood several hours. They may be distinguished from each other by boiling a little of the urine in a test tube over the flame of a lamp, the urates being dissolved by the heat, while the phosphates are precipitated. The phosphates may in turn be dissolved by adding a few drops of nitric acid to the urine. Mucus in the urine is not affected by heat, acid or alkalies. Pus is deposited as an opaque white sediment, sinking rapidly as long as there is an acid reaction to the urine, and no mucus present, in which it may be suspended. It resembles urates, but is not, like them, dissolved on the application of heat. In Bright's disease albumin is present, and often casts of the minute passages of the interior of the kidneys are

found. These casts can only be seen by careful examination of the urine under the microscope.

Test for Albumin—The presence of albumin in the urine can generally be detected by heating a small amount of urine in a test tube. If the urine becomes cloudy or a heavy deposit of whitish material occurs, albumin is probably present, but since phosphates are also precipitated by heat, a further test is needed. After heating, a few drops of nitric acid are added to the solution, and if there are phosphates present they will at once disappear, leaving the urine clear, while albumin will remain as a dense white precipitate. Remember that heat precipitates albumin and the phosphates, while the urates are dissolved by it; nitric acid precipitates albumen and the urates, but dissolves the phosphates.

Test for Sugar—Pale urine produced in large quantity and of a high specific gravity probably contains sugar. The tests commonly employed for sugar are of too complicated a nature to be carried out in the home. The following simple test will, however, enable you to determine whether or not sugar is present in a suspected specimen. To the specimen of urine, half filling a clean bottle, add a few crumbs of dry yeast and set in a warm place for twelve hours, corking tightly. At the end of that time, if sugar is present, fermentation will be found, together with the development of carbonic acid gas.

Suppression of Urine—Suppression of urine is an absence of the flow of urine, due to a failure of the kidneys to act. It is a rather uncommon condition, and is found complicating some diseases, and also as a symptom of some forms of poisoning.

Retention of the Urine—Retention of the urine is that condition in which the bladder fails to expel its contents. This may have various causes. The bladder may be paralyzed or the senses dulled, so that there is no desire to pass urine, even when the bladder is full, or there may be a nervous contraction of the urethra, resulting in an inability to do so, even when the inclination is felt. When no urine has been passed for some time, if there is pain on pressure over the bladder, a dull instead of a clear sound when you lightly tap the abdomen over the bladder, and if the outline of the bladder can be distinctly felt, it may safely be assumed that there is retention of the urine. Hot appli-

cations over the bladder or sponging with hot water between the thighs will sometimes relieve it, especially in children.

Incontinence of Urine—Incontinence of urine occurs when there is weakness of the neck of the bladder, so that it is unable to retain its contents. It is most frequent in children. Apparent incontinence may be really retention, with an overflow caused by the overdistention of the bladder and consequent muscular strain. In all cases of incontinence of urine special care is needed to keep the parts clean and prevent excoriation by frequent bathing and the application of soothing ointments. Rubber urinals are often of value.

The Use of the Catheter—When it becomes necessary to use the catheter, proceed as follows: oil the instrument with the finger. Have the patient lie flat upon the back, with the thighs slightly separated. In the case of a male patient introduce the end of the catheter into the urethra and gradually push it along the canal until it enters the bladder. In introducing the catheter never use force. Take plenty of time and use gentle, firm pressure. In the case of the female patient, first introduce the finger into the vagina, and by gently pressing upwards the urethra may be felt between the finger and the bones forming the pubic arch. Then gently slide the point of the catheter along the finger, using it as a guide until it enters the urethra. Do not push it into the bladder far enough to strike the walls.

As soon as the cavity of the bladder is reached the urine will begin to flow into the vessel provided for its reception. After the bladder is emptied withdraw the catheter as gently as it was introduced. A distended bladder should not be too rapidly emptied by the catheter, as inflammation may follow the sudden collapse of its walls. When the bladder is very full draw only a portion of the contents at the first introduction of the catheter, and repeat the operation soon after. After each use of the catheter it should be thoroughly cleaned and disinfected. Let a stream of water run through it, first from the eye of the instrument downward, that any sediment may not be driven down into the point.

THE OBSERVATION OF SYMPTOMS.

The distinguishing characteristics of a good nurse are: ability to observe accurately and recognize the meaning of various conditions of, and changes of condition in, the person of whom she has the care. These conditions are called symptoms. Symptoms may be classified as subjective, those which are evident to the patient only, objective, which may be seen and recognized by outside observers, and simulated, those which are feigned for purposes of deceit, either to excite sympathy or from other motives. It is often very difficult to distinguish between false and true symptoms; often genuine suffering may be mistaken for fraud or hysteria, if the usual objective manifestations are absent. As a rule entirely subjective symptoms may be regarded with some degree of suspicion, as disease without some outward sign is comparatively rare.

The degree of intensity of all symptoms, the time and order of appearance and the combinations of symptoms are to be observed. Often a symptom which by itself would be insignificant, becomes in its relations to others of grave importance. Do not rely too much upon the memory, but keep a little memorandum book in which the facts may be noted.

Points to be Observed—Attitude and expression are sometimes very characteristic, giving valuable indications. A sufferer instinctively takes the position most calculated for ease. Thus, when one lung is affected the patient lies on that side, in order that the healthy one, which has to do most of the work, may have the greatest freedom of motion. Lying on the back, with the knees drawn up so as to relax the abdominal muscles, suggests peritonitis. With colic, on the contrary, you may find the patient lying on the abdomen, as pressure relieves pain of that character. When a patient who has lain persistently upon his back turns over to the side it may be looked upon as a sign of improvement. There is no surer sign that the distress of dyspnea is removed than for a patient who has been forced to sit, to lie down and compose for sleep. Lying quietly is usually a favorable sign, but in acute rheumatism the patient is quiet because the

least motion causes pain. Again, extreme weakness may make it too great an exertion to move. Restlessness is an unfavorable sign in organic disease. Slipping down towards the foot of the bed is often a very bad sign. A pinched and anxious look on the face is often an indication of the advent of serious conditions, while a tranquil expression is usually a favorable symptom. Sudden lack of expression, apathy or immobility of the features is a bad symptom. In facial paralysis, expression will be totally absent from half the face, or the healthy side will be drawn and distorted. Some painful abdominal diseases are accompanied by a peculiar smile, *risus sardonicus*, caused by contraction of the muscles of the mouth. Any such change of the features is noteworthy, as is also extreme thinness or swelling of the lips and excessive action of the nares. The most important signs of disease are the pulse, respiration and temperature; these are sometimes called the three vital signs. The three are intimately associated, and correspondingly affected. Note carefully the frequency, rhythm and force of the pulse, and its relation to the other symptoms. The rate and any peculiarity of the respiration is to be observed; note whether it is most abdominal or thoracic, if regular or irregular, easy or labored, and whether or not it is accompanied by pain. There is no pain in disease of lung substance alone; when the pleura is involved, there is sharp pain. In bronchitis there is difficult breathing, with more or less muscular effort; in pneumonia it is rapid, but perfectly easy and quiet. Dyspnea is caused by various conditions. There is one very peculiar form of it known as Cheyne-Stokes respiration, in which the inspirations, at first short and shallow, become by degrees deep and difficult up to a certain point, and then more and more superficial until they entirely cease. After a pause of from a quarter to half a minute the same series of phenomena are repeated in the same order. This is a curious and generally fatal symptom.

Cautious respiration indicates lung trouble of some kind. Oedema, or the presence of fluid in the air passages is shown by rattling and shortness of breath. The sounds produced by the passage of air through the fluid in the air cells, bronchi, or cavities, are known as rales.

Cough—Nearly all diseases of the respiratory organs are accompanied by cough. This is caused by irritation of the air passages. Matters coughed up are called sputa. Cough not accompanied by expectoration is said to be dry. The character of the expectoration varies with different diseases. In bronchitis it is first simply mucus, later it may become purulent, and in chronic cases it is thick and yellow. The sputum of consumption is at first tenacious and rope-like, sometimes frothy, and at an advanced stages becomes purulent and streaked with blood. With pneumonia the expectoration is for the most part scanty; after a certain stage it has a characteristic rust color and a tenacious, tough quality. In children the sputum is often swallowed; if thrown up mixed with food it may be known to come from the stomach. Note the character of the cough, whether it is hard or loose, choking, short, incessant or paroxysmal. Note also the frequency, duration and intensity of paroxysms, and if followed by exhaustion or perspiration. The peculiar ring of whooping cough is well known and cannot be mistaken. In spasmodic contraction of the glottis there is a peculiar crowing sound. Hiccough is a spasmodic contraction of the diaphragm; ordinarily it is of no importance, but an important and unfavorable symptom when it occurs toward the close of an acute disease.

Chills—If a patient complains of cold without apparent reason, take his temperature at once. A sense of coldness along the spine is often the precursor of a chill, and the temperature will be found elevated rather than lowered. Chills or rigors are nervous phenomena; although the patient is shivering the temperature rises, because the capillaries are so much contracted that the blood cannot get to the surface to be cooled. High fever always follows a genuine chill. Chills may be the first symptom of acute disease; if they occur in the course of inflammation they probably indicate suppuration; in malaria, chills are severe and prolonged, but not dangerous. The temperature should be taken both during and soon after the chill. When fever falls there is apt to be profuse perspiration. Extreme weakness and other causes often produce the same result. The degree of moisture or dryness of the skin is always an important point. A high temperature with a wet skin is much more dangerous than the same temperature with a dry skin.

Change in the Skin—The skin affords many conspicuous signs of disease. Variations from a healthy color will at once attract attention. The yellow tinge of jaundice is well known, indicating disordered action of the liver. With anemia there is a peculiar paleness; in Bright's disease a waxy complexion. A red color indicates an excess or suffusion of blood in the skin. A cyanosed or bluish shade means imperfect purification of the blood. In disease of the lungs there is often high color of one cheek alone. Sudden change of color may give warning of syncope or fainting. Paleness about the mouth, with compressed or slightly parted lips, indicates nausea. Any eruption or rash occurring on the body is of special importance, and its character and location should be carefully noted. Scaling off of the cuticle is called desquamation. This takes place generally in the course of scarlet fever, and some other diseases. The patient will generally call attention to any local irritation or unnatural sensation such as burning, tingling, itching, numbness or crawling. Early signs of bed sores cannot be too carefully watched for. The condition of wounds must be carefully watched; blushing or puffiness of the surrounding parts, sudden stops or alteration of any discharge from a wound must be noted and the cause sought for.

Symptoms About the Eye—The eye often gives signs of general disease. It may appear unduly prominent or sunken; there may be altered color or inflammation of the mucous membrane, disturbances of or loss of vision. Observe the size of the pupils, whether one or both are contracted or dilated. A condition of cross-eyes, coming on during the course of brain disease is an unfavorable symptom. Note any swelling of the eyelids drooping or tremulous movement of them, fear of light, apparent weakness, and over secretion of tears.

Symptoms About the Ear—The sense of hearing may be unnaturally acute or, more common and less significant, defective. The former condition sometimes precedes delirium. Noises and ringing in the ears may result from congestion of the cerebral blood vessels. Some drugs, notably quinine, produce this effect. Any discharge from the ear should be noted, and changes in the character and amount observed.

Alterations in the Sense of Taste—Taste, like other special senses, may be impaired or altered. With a disordered liver, there is often a bitter taste; in pulmonary consumption, there may be a taste of salt; and when taking some medicines a decided metallic flavor. The sense of taste may be entirely destroyed for a time. It is rarely overacute.

Symptoms about the Tongue—This organ offers many valuable indications, for it sympathizes not only with the digestive organs, but to some extent, with the whole system. Note if it is dry or moist, clean or coated, swollen, bitten or indented by the teeth. With fever the tongue is likely to be furred; but this is not always a sign of disease, for some people in good health have a furred tongue constantly, or it may be produced by slight constipation. The fur may be white, yellow, or any shade of brown to nearly black. When fur begins to grow thin, and clean up from the edges of a fevered tongue, it is a better indication of improvement than when it clears off in patches or rapidly, leaving a raw or glossy surface. In scarlet fever there is often a characteristic appearance known as the "strawberry tongue," a bright red with the little swollen glands showing prominently through the fur. The swollen, livid tongue of typhoid and typhus fever is sometimes called the "mulberry-tongue."

Symptoms about the Mouth and Throat—Notice the odor of the breath and the state of the gums and teeth. Looseness of the teeth, and soreness of the gums are to be watched for when a patient is taking considerable quantities of mercury. Salivation, or overabundant secretion of saliva, is caused by a number of different drugs, and sometimes occurs spontaneously. At the beginning of acute disease the secretion of saliva is often diminished in quantity and thickened. When there is high fever the teeth, unless well cared for, may become covered with accumulations of dark brown matter known as sordes. Inflammation of the mouth occurs mostly in the case of infants, but may be seen in adults in an advanced stage of disease. White patches in the throat are always ominous. Slight sore throat often accompanies indigestion or a cold.

The Appetite—This is always an important point. Nearly all acute diseases cause loss of appetite. An increased appetite may

sometimes be found, even with an inability to retain the food taken into the stomach. The appetite may be perverted, with a desire for improper food, but as a rule a longing for particular things shows a need of them which ought to be gratified. Observe with special care how much food the patient takes, what kinds of food are most acceptable, and, as far as possible, the effects of each.

Thirst—It may remain when the appetite is entirely lost. Thirst almost always exists in acute, but is seldom seen in chronic disease.

Nausea and Vomiting—Nausea is a very common symptom. It is usually relieved by vomiting. Note whether the nausea is persistent, whether the vomiting is accompanied by straining or pain, the interval since taking food or medicine, and the amount and character of the vomited matter. This will generally be undigested food; it may contain bile, blood, or even fecal matter. The presence of the latter constitutes stercoraceous vomiting. An appearance like that of coffee grounds is sometimes caused by the admixture of a small quantity of blood in the vomited matter. The "black vomit" of yellow fever has something of this character.

The Stools—When blood is present to any extent in vomited matter it is usually found also in the stools, giving them a dark color and a tarry consistency. Some drugs, as iron and bismuth, will blacken the stools. With jaundice, they will be very light, clay-colored. It is important to note the frequency and quantity of the evacuations, whether solid or liquid, any unnatural odor or appearance, and the presence of mucus, pus, blood or worms. Tenesmus, a constant desire to empty the bowels, with pain and inability to do so, is a distinguishing symptom of dysentery. Constipation is very common and is often produced by overuse of cathartics or injections. Diarrhea may exist even with impaction of the feces in the rectum, the patient having frequent small movements without unloading the bowels. What is passed under such circumstances will be either fluid or small, dark, hard masses, known as scybala. This is important to remember, for one is too apt to have the idea that the patient's bowels are all right if they move daily, without regard to the quantity passed.

Evacuations of gas, rumblings of the intestines and tympanites, distention of the abdomen by gas, are all points to be noted.

Hemorrhage—Hemorrhage from any organ is always more or less important. Even a simple nose-bleed may be an initial symptom of typhoid fever. The color, quantity and general character of the blood should be carefully observed.

Pain—Pain is always a subjective symptom, though most often accompanied by other symptoms which are objective. Pain implies life and reaction, and its absence is not always a favorable symptom. With extreme degree of shock there is no pain. Sudden cessation of pain during the progress of severe organic disease generally means approaching death. Pain may be inflammatory or neuralgic; the former is increased by pressure over the point of pain, the latter is relieved by it. Get the patient to describe the kind of pain he feels, as well as to locate it; to tell whether it is acute, dull, aching, stinging, burning, steady, spasmodic, etc. Exaggerated sensibility is called hyperæsthesia; diminished or lost sensibility, anæsthesia. Either may be general or local. Partial anæsthesia is often accompanied by loss of muscular power, paralysis.

Nervous Symptoms—Incoherence of speech, muttering, slowness of comprehension, loss of interest in things about them, unusual irritability of temper, difficulty of swallowing, a tendency to spill food or drop things and picking at the bed-clothes are all symptoms of gravity. Involuntary muscular contractions vary from slight spasms, such as cramps, to severe convulsions. Twitching of the muscles and many little nervous motions may be so classed. Note the frequency and persistency of the motions, whether the convulsions are general or confined to one part of the body, whether or not the patient is unconscious, whether the attack is sudden, and the mental state before and after it.

Disorders of Consciousness—Under this head are included all sorts of delusions and hallucinations, delirium and stupor. Note the kind of delirium, whether quiet, busy or maniacal; whether persistent or only occasional and when it is most violent. See if the patient can be roused from stupor. Complete insensibility, from which the patient cannot be awakened, is known as

coma. Profound coma, which does not terminate within twenty-four hours, may be regarded as almost certainly fatal. Continuous sleeplessness, with partial consciousness, constitutes coma vigil—also an almost invariably fatal symptom. Sleeplessness is always a dangerous symptom, in proportion to its duration. It is important to note how much sleep a patient gets, at what time he sleeps, and whether it is quiet or disturbed, the occurrence of dreams, talking in the sleep, etc. A patient will often think he has been awake all night when, in fact, he has had several hours of sleep without realizing it.

GENERAL DISEASES.

The principles of medicine constitute what may be called Medical Science. The practice of medicine is the use of the medical art, and consists of all that pertains to the knowledge of and prevention and cure of the diseases which may be met with.

Disease may be defined as a deviation or alteration in the functions, properties or structure of some tissue or organ whereby its office is no longer performed in accordance with the natural standard.

Pathology is the study of disease and explains the origin, cause, nature and history of the various diseases to which man is liable.

The causes of disease may be divided into internal, external, ordinary, specific, primary, secondary, predisposing and exciting. Examples of internal causes are: sickness caused from overwork of the brain, long continued emotional excitement or the concentration of the mind on one idea; of external causes: poisons, wounds and injuries. An ordinary cause is one to which all are more or less exposed, as changes in the atmosphere. Specific causes are those producing special diseases, such as typhoid fever, yellow fever, smallpox and cholera. A primary cause is any blow or severe hurt. A secondary cause is such a one as blood poisoning resulting from a diseased kidney. The disease is in the kidney, but as a secondary result comes the blood poisoning. A predisposing cause is a special liability to disease, and this is usually inherited. Exciting causes are those giving rise to disease in those already predisposed to certain diseases, as persons predisposed to rheumatism on being exposed to certain changes in the atmosphere have an attack of the disease.

The history of disease includes all the symptoms and signs which may occur from the beginning to the end of the disease.

Symptoms and signs are such alterations in the healthy functions as give evidence of the existence of a diseased condition or a function which is turned aside, and they may be either objec-

tive or subjective. They are objective when noticed by an observer, such as redness or swelling; subjective when felt by the patient, such as pain or numbness.

The ultimate and most important object of the study of medicine is to learn how to cure, relieve or prevent disease, and it must be borne in mind that this does not consist solely in the giving of drugs, but requires strict and faithful attention to nursing, diet and hygiene. When the object is to prevent disease, such as smallpox, by vaccination, it is called preventive treatment. When disease is to be broken up, although already begun, such as aborting the chill of malaria, it is called abortive treatment. When the disease is allowed to run its natural course without attempting its removal, but being constantly on the alert for obstacles to its successful issue, such as the generally adopted plan of treating continued fevers, it is called expectant treatment. When the disease is incurable and the relief of suffering is the object it is called palliative treatment. When marked prostration and weakness are to be overcome it is called restorative treatment.

Smallpox—Smallpox is an acute epidemic, contagious disease, known by severe pain in the back, vomiting and a fever lasting from three to four days, followed by an eruption, at first a simple pimple, then with a little blister on top of the pimple, and finally with matter or pus in the blister. When the matter or pus forms there is a second rise of fever, and complications are liable to occur at this time. A poison whose nature is unknown, but which maintains its power to give the disease for a long time, is the cause of the disease. The disease is contagious from the very first to the end of the sickness, although the stage when matter is forming in the pimples is the most dangerous time. One attack protects from another. Vaccination will absolutely prevent smallpox.

Symptoms and Signs—The disease begins suddenly with a violent chill, vomiting and agonizing pains in the back which shoot down the limbs. The fever will rise in a short time to 103° or 104° . The pulse is full, strong and rapid, ranging from 100 to 130 beats per minute. The face is red, the eyes bloodshot, the head aches and sleep is not possible. Delirium and convulsions occur at times. During the third day the eruption makes its

appearance, first upon the forehead and lips, and consisting of coarse red spots. With the appearance of the eruption the fever falls, all other symptoms are less severe and the patient feels quite comfortable. About the sixth day of the disease the little blisters form on the top of the pimples, and on the eighth day pus commences to form in the blisters. Each pimple is surrounded by a broad red band, the face becomes swollen and the features distorted. As soon as the pus begins to form the fever rises again and the patient is even sicker than he was at first. A peculiar odor is noticed at this time. This is the most critical point of the disease, and is usually attended by severe delirium. This second fever subsides in three or four days in favorable cases. About the eleventh day pus runs from the blisters, and drying forms the scab or crust, which drops off about the twentieth day, leaving a red, glistening pit, which becomes white when the patient gets well. During the course of the second fever the patient may have inflammations of a serious character in any part of the body, such as inflammation of the covering of the lungs or of the lungs themselves, or dysentery may occur. As the patient gets nearly well boils and abscesses are very liable to form. Smallpox cannot be confounded with any other disease when the regular symptoms occur—chill, vomiting, pain in the back and legs, high fever and rapid pulse, all growing better on the third day, when the eruption appears, first spots, then pimples, then blisters, then pus in the blisters, finally drying and forming crusts.

Treatment—There is no medicine that will act on the disease itself, and therefore medicines must be given for the symptoms as they arise. The patient must be put to bed in a room entirely away from the rest of the family, and patient and nurse must be kept entirely to themselves. Allow no one else in the room for any purpose whatever. Should a person be taken sick with smallpox immediately have every other person who has been or will be near the sick one vaccinated; this may not prevent the disease, but if not it will make it more mild. Do not allow strangers to even come near the house. During the first fever bathe the patient often in cool or cold water, relieve the headache by cold cloths or an ice bag placed on the head. The pain in the back will be severe, but do not try to relieve it by a mustard plaster or any counter-irritant, as the pocks come out much thicker

where anything of the sort is used. As soon as any fever is noticed give to a child 12 years old and younger one tablet No. 13 every three hours. To a person above the age of 12 give one tablet No. 13 every two hours. If the patient is very restless give one tablet No. 7 every two hours and one-half this dose to a child. For the second fever continue the use of No. 7 and drop No. 13; in its stead give to a child 12 years old or younger one tablet No. 27 every three hours and to a person over 12 years of age give one tablet No. 27 every hour.

The food during the entire course of the disease must be liquid and the patient must be carefully nursed. Read the chapters on hygiene and nursing on pp. 17 and 81 and follow the instructions there given as carefully as you know how. After the scabs or crusts begin to form keep the patient well rubbed with No. 41. Should smallpox occur send for your physician and follow the instructions here given until he arrives; then obey him to the very letter in everything.

Erysipelas—St. Anthony's Fire—Erysipelas is an inflammation of the skin caused by a known germ and recognized by redness, swelling and pain. A person who has had one attack is liable to have the disease again. Erysipelas nearly always occurs upon the face and neck.

Symptoms and Signs—The disease begins with a chill, followed by fever, which soon reaches 103° or 104° ; the pulse is from 100 to 120, the tongue is coated, and sometimes there is vomiting. Some pain is present in the limbs, the nose bleeds, and very often diarrhea is noticed. The patient is often delirious, and if he is a person who has used alcoholic stimulants this delirium will very much resemble delirium tremens. Very soon after the chill red spots appear, which run together and spread. The skin is swollen until it looks tight and shiny; there is a sense of heat and tightness and a tingling sensation. The swelling is sometimes so great as to close the eyes. After four or five days the redness and swelling leave and the skin peels off somewhat. A symptom that is nearly always present is some disturbance of the stomach and digestion in general. The patient is nearly always quiet wakeful and restless. The patient will be a long time in recovering from this disease, for although the disease soon leaves he

will not gain strength as rapidly as in recovery from many other diseases.

Treatment—Put the patient to bed and open the bowels very thoroughly with No. 16. Feed entirely upon nourishing sick foods; for directions as to preparing see the chapter on Diet in Disease on p. 106. Wherever the redness and swelling occur rub carefully and thoroughly with No. 42. Give one tablet No. 27 every hour; also give twenty drops fluid extract of pilocarpine every two hours. No other treatment will be needed.

Dysentery—Bloody Flux—Dysentery is an acute inflammation of the mucous or lining membrane of the large intestine accompanied by fever and frequent small stringy and bloody stools. Dysentery is usually caused by the varying temperature of hot days and cool nights, by attacks of malaria and by the wrong sort of diet. It is always found in armies, jails and places where large bodies of men congregate and the hygienic surroundings are not of the best.

Symptoms and Signs—Dysentery begins with some slight irregularity of the bowels for a few days, and then appears a moderate diarrhea; there is loss of appetite, some nausea, and very slight fever. This continues for two or three days, when the true symptoms of dysentery begin. There is pain on pressure over the bowels, colicky pains in the abdomen, burning pain in the rectum; the desire to evacuate the bowels is almost constant; the stools are scanty, stringy and bloody; there is little or no odor to the stools; the bowels move from five to twenty times in twenty-four hours; the urine is scanty and highly colored. The disease usually lasts about a week, and the patient becomes very thin and weak; the pulse is somewhat feeble, and the face is drawn and peaked. The tongue is dry and very little coated. The skin becomes cool and rough; the voice weak and hoarse. Then all these symptoms gradually become better and after a few weeks the patient is well again.

Treatment—The diet must be carefully selected and should consist of broths, milk and soft foods. The patient should not leave the bed. Brandy or wine in moderate quantities will help. As soon as the patient leaves the stool it should be thoroughly disinfected with carbolic acid and removed. Washing out the bowel with

injections of hot water will be a relief to the patient. As soon as you are sure^r that your patient has dysentery give three table-spoonfuls of castor oil. Two hours after the oil has been given give one^t tablet No. 29, and give one tablet every two hours, day and night,^r until the disease is checked. After the dysentery is checked give one tablet No. 17 three times a day before meals and continue this until the patient has regained his normal strength. In this disease, as in all others, careful nursing will count^t for much.

Malarial Fever—Intermittent Fever—Fever and Ague—Swamp Fever—The poison which produces malarial fever is found^t in certain places, and any person who remains for any length of time near such a place is liable to an attack of the fever. A person having malarial fever may come into a neighborhood or district where the disease is unknown and there will be no danger of his giving the disease to others. Malarial fever is not contagious. The malarial poison grows in the soil and requires heat, moisture and air for its full development; hence we find the disease at its height in the swampy lands of the South. The poison seems to be stronger at night than during the day and is only found near the ground; hence when in malaria infected districts it is safer to sleep in the second story of the house than on the ground floor. Attacks of malarial fever are more liable to occur in the spring and fall than at any other time. A patient who has had malaria once is liable to have it again, and there will be intervals during which there is little or no fever. The fever is known by a cold, a hot and a sweating stage, followed by an interval in which the patient is apparently well. There are a number of varieties; one has an attack of fever every day, one every other day, one the first and fourth days, one has weekly attacks and some attacks are irregular.

Symptoms and Signs—Each attack has three stages—the cold, the hot and the sweating.

The Cold Stage begins with lassitude, yawning, headache and some nausea, followed by a chill; the teeth chatter; the skin is pale; the nails and lips are blue; the skin has the so-called goose skin appearance; there is great thirst; and the fever rises to 102° or 104°. These symptoms continue from a half hour to an hour.

The Hot Stage begins gradually, the shivering ceasing and the skin becoming hot and flushed, the fever rising as high as 106° or more, the pulse is full and rapid; there is headache, nausea, intense thirst, dry, flushed, swollen skin and scanty urine. The hot stage lasts from one to eight or ten hours.

The Sweating Stage begins gradually, the sweat first appearing on the forehead, then spreading over the entire body; the fever falls to almost normal, the pulse is less full, and not so rapid; the headache is less, and a general feeling of comfort exists, the patient frequently falling asleep. The sweating lasts from one to four hours. After the sweating period there is a period when the patient is entirely well with the exception of a general feeling of weakness. After this comes another attack and the time between the attacks of fever is the same each instance. There is no difficulty in naming the disease when the chill, fever and sweat occur.

Treatment—When the cold stage begins give one teaspoonful of spirits of chloroform; this will make the other stages less severe. When the hot stage comes on give cool drinks and frequent cold sponge baths. When the sweating begins sponge often with hot water, to which a small quantity of alum has been added. As soon as the sweating stops give to a child one tablet No. 9 every hour until a very free movement from the bowels occurs. To an adult give one tablet No. 16 every two hours until the bowels move freely. As soon as the bowels have moved give to a child 6 years old or younger one tablet No. 27 every three hours, and two hours before the next chill is expected give two tablets No. 27. To a child 6 to 12 years of age give one tablet No. 27 every two hours and two hours before the chill is expected give three tablets No. 27. To a person over the age of 12 years give one tablet No. 27 every hour and two hours before the next chill is expected give from five to ten tablets No. 27. As soon as the chill comes on stop the use of No. 27 and use the treatment given above for the cold, hot and sweating stages. After the chills and fever have been broken up give two tablets No. 24 every two hours. Keep this up for one month at least. After the chills and fever have been broken up No. 27 should be given from the fourth to the sixth day, from the twelfth to the fourteenth and from the nineteenth to the twenty-first day. After this No. 27

need not be given any more. Careful attention to the treatment here outlined will enable anyone to treat malarial fever as well at home as with the attention of a physician, always remembering that diet, nursing and hygiene have much to do with the recovery of a patient from any sickness whatsoever.

Hydrophobia—Hydrophobia is a peculiar infectious disease which sometimes occurs in dogs, and more rarely in other animals. In the dog it goes under the name of rabies or mad dog. Persons who are bitten by such animals may catch the disease and become the victims of terrible symptoms which originate in the central nervous system. Cases of hydrophobia are usually easy to distinguish as there is always a history of being bitten by a rabid animal. Treatment is not very effective, although the care received at the various sanitariums which treat "mad dog bite" has saved many lives. If a patient cannot be placed in an institution of this sort there is but one relief for him, and that is death, hence the efforts in such a case must be to relieve the suffering, and this is best done by full doses of opium or chloral hydrate.

Glanders and Anthrax—These are two diseases which occur in animals and are sometimes transferred to man. They rarely occur in man, but when either disease is found there is but little hope of recovery. Glanders is particularly a disease of the horse, and is characterized by peculiar new growths in the nose. These break down and discharge, and the discharge from these will convey the disease to man. Anthrax occurs in the cow, sheep and horse. The apparently healthy animal will suddenly fall, have a few convulsions and die. Death always occurs in the animal, and this is equally true in man. Man acquires this disease by coming in contact with animals which have died from anthrax.

Trichinosis—By this is meant a disease caused by taking into the system a peculiar class of round microscopic worms known as trichinæ. *Trichina* occurs in animals; is found in the lean meat of pork, and through eating this meat when it is not properly cooked the trichina enters the human stomach. In the pork the trichina is in a capsule, and as soon as it enters the human stomach this capsule is dissolved and the worm is set free in the stomach and in two or three days the worm attains its full size. In about seven days after the trichinæ are taken into the stomach

they begin to reproduce, and a single female will often produce a thousand young. As soon as the young are born they bore their way through the walls of the intestines, and finally reach the muscles, being later found in all of the muscles of the body. When the trichinæ reach the muscles they form capsules about themselves and remain there. Unless liberated in the manner already described the trichina ends its existence in the muscles.

The only treatment for trichina is to prevent the disease by not eating pork unless it is thoroughly cooked. The cooking kills the trichinæ.

Acute Bronchitis—This is sometimes known as “cold on the chest,” and is an acute catarrhal inflammation of the bronchial tubes, accompanied by fever, pain about the breast bone, feeling of weight on the lungs and difficult breathing, followed by expectoration. The disease many times starts with a cold. Breathing dust, smoke and air which is too hot or too cold may produce this disease; it may be caused by sudden and marked changes in the weather.

Symptoms and Signs—The disease usually begins with a cold in the nose or throat or both; the patient feels chilly and then feels quite warm; the whole body aches and the patient feels tired and has no energy; the tongue is coated and the bowels are constipated. A cough is present from the very first and is dry and hard to begin with, but later on loosens up and considerable amounts are raised. The material raised at first is light and frothy, but later it becomes tough, yellow or greenish in color, and there is lots of it. A day or two after the disease begins pain is felt beneath the breast bone, especially toward the upper end; this pain is a raw, burning or tearing pain, which is made worse by drawing in a deep breath or by coughing. There is slight fever, dry hot skin, rapid pulse, loss of appetite and moderate thirst. After the patient begins to expectorate somewhat, if the ear is placed over the chest moist, bubbling sounds will be heard.

Treatment—When the disease starts and before the cough becomes loose give to adults one tablet No. 13 every three hours and also give one tablet No. 27 every two hours. Allow the patient to use No. 31, this last to be placed in the mouth and allowed to dissolve—the tablet should not be swallowed. To

children give one tablet No. 11 every two hours and one tablet No. 27 every four hours. Allow children to use No. 31 the same as adults. Give to both children and adults hot foot baths, turpentine stupes over the chest, and as the cough becomes a little loose, stop giving No. 31 and give in its stead No. 26. This tablet is to be used in the same manner as No. 31. The diet must be carefully looked after. Good nursing is an essential and the bowels should be kept regular by using No. 9 for children and No. 16 for adults.

Chronic Bronchitis—This disease is a chronic inflammation of the mucous or lining membrane of the bronchial tubes. Chronic bronchitis is seen especially in adults and old people. The disease is caused by exposure to wet or cold, repeated breathing of dust, smoke, vapors or other irritating substances; it may also be due to rheumatism, heart disease, kidney disease, or the excessive use of alcohol.

Symptoms and Signs—The most common symptom is cough and expectoration. The cough is always in paroxysms more or less severe and quantities of material are raised. This material is thick, stringy and yellowish. Occasionally the breath is very bad. The patient loses the appetite, or frequently will eat a meal and immediately afterwards a paroxysm of coughing will come on and the patient will vomit. Either this condition or the loss of appetite will cause the patient to lose flesh. In adults this loss of flesh amounts to about a half pound to one pound per week. There is a feeling of soreness about the lungs and very often a feeling of tightness. The patient will feel fairly well and will attend to his usual duties, but will be interrupted frequently by spells of coughing. If the patient who has chronic bronchitis be careless about exposing himself the disease is very apt to terminate in consumption.

Treatment—A person who is suffering from chronic bronchitis must very carefully observe all the rules of health; must dress, eat, sleep, bathe and exercise in the right manner and must not expose himself needlessly in any way. This is really the principal part of the treatment. For medical treatment spray the throat and nose every day with a solution made by dissolving three tablets No. 3 in a cup of warm water. Then use either No. 26 or No.

31, allowing the tablet to dissolve in the mouth, and use the one that gives the most relief. A change of climate to a warmer and dryer climate will cure the disease. Light mustard plasters or turpentine stupes over the chest will oftentimes give relief.

Asthma—Asthma is a spasm of the muscles around the bronchial tubes which occurs in paroxysms; the breathing becomes difficult and continues so for several hours. Asthma is more common in men than in women.

Symptoms—The first attack of asthma begins very suddenly, but the attacks which occur later begin more slowly and with signs which the patient soon learns to recognize. There is running from the eyes and nose, irritation in the chest, a feeling as though there was not breathing space enough, and the digestive organs do not work well. The attack usually begins in the early morning or late in the afternoon with a feeling of anguish and tightness in the chest and an intense desire for air. The breathing is accompanied by loud wheezing, the face is flushed and at times even blue and bathed in perspiration, the eyes stare and seem to be starting from their sockets, the muscles of the neck show clearly as they aid in the effort to get air. The difficulty in breathing soon becomes so marked that the breath is only a gasp, the lips are pale, the face blue or almost black, and the patient feels as if about to die. After some minutes or hours the breathing becomes easier, more air enters the lungs, the blueness disappears and gradually the paroxysm ceases, the patient feeling tired out and the chest sore. During the attack there is a short, dry cough, which becomes looser as the spell passes off and there is some expectoration toward its close. The attacks may last from three to ten hours, and nearly always prevent the patient from lying down or taking food.

Treatment—Asthma is many times due to diseased conditions of the nose or throat and will stop when these defects have been rectified; hence when a patient is suffering with asthma always consult a specialist and if the nose or throat needs any attention have that attended to. Asthma itself is very hard to cure and the best we can do is to relieve the spasms and attend to the general health. Change of climate is necessary to effect a cure in many cases. For the relief of the spasms, soak some pieces of

blotting paper in a solution of nitrate of potassium, dry them and when a paroxysm comes on take a small piece of this paper, burn it and inhale the fumes.

Hay Fever—This is an acute catarrhal inflammation of the upper air passages and extends to the bronchial tubes. Hay fever is an affection of the nervous system said to be produced by the inhalation of the pollen of weeds or grain.

Symptoms and Signs—The disease begins with a running from the nose, red watery eyes, sneezing, hoarse, croupy cough and difficult breathing. It begins about the same time each year and lasts for from six to ten weeks, and each year is worse than the year before.

Treatment—The only treatment that will do any good whatever is a change of climate.

Congestion of the Lungs—By congestion of the lungs is meant an increase in the amount of blood present in the smaller blood vessels of the lungs. Congestion of the lungs may be caused by increased heart action, overexertion, use of too much alcohol, great mental excitement, breathing of hot or cold air, obstruction to the return of the blood to the heart from the lungs, enlarged heart, disease of the valves of the heart, low fevers and Bright's disease.

Symptoms and Signs—There is distress in the lungs, which rapidly grows worse, difficulty in breathing, flushed face, full, strong rapid pulse, the large blood vessels in the neck throb, the heart palpitates and the eyes are congested. There is a short, dry, hacking cough, followed by scanty blood streaked expectoration. On thumping the lungs the sound is somewhat hollow. Very acute cases may cause death in a few hours, but under prompt treatment the end of the disease is ordinarily favorable.

Treatment—Nothing succeeds so well as blood letting—the old fashioned “bleeding” will give relief in a short time. Give enough No. 4 to move the bowels thoroughly. If the heart seems depressed or weak give one tablet No. 28 every three hours. If the heart is very weak give stimulants.

Pneumonia—Lung Fever—There are two principal varieties of this disease; lobar pneumonia and broncho pneumonia.

Lobar Pneumonia—This is an acute croupous inflammation of the structure of the lungs, accompanied by a severe chill, fever, pain, difficult breathing, cough, rust-colored expectoration, and great prostration. Lobar pneumonia is caused by exposure of any kind, by injuries to the chest walls, by alcoholic excesses, and by rheumatism. The disease is divided into three stages by the changes which take place in the lungs. The first is the stage of congestion, or engorgement, and in this stage the vessels around the small air-cells in the lungs become so filled and distended as to encroach upon the air space in the cell. The second is the stage of exudation, and in this stage the small blood vessels, which have already become distended, throw off the thick fluid which is mixed with white and red corpuscles. The exudation rapidly coagulates on the lung substance and soon completely fills the small air-cells. This process is completed when the air-cells are filled. Could a lung in this condition be removed from the body and cut through with a knife the cut surface would resemble the cut surface of liver. The third stage is the stage of resolution, and in this stage the matter which has filled the air-cells becomes liquid and is taken up by the blood and carried away, some parts of this material, however, being raised by coughing and disposed of in this manner. The stage of congestion lasts from one to three days; the stage of exudation from three to seven days and the stage of resolution from one to three weeks. The most frequent place for lobar pneumonia to occur is the lower lobe of the right lung, the next most frequent place is the lower lobe of the left lung, then the upper right lobe.

Symptoms and Signs—The disease begins with a severe and usually protracted chill, vomiting, and a rapid rise of fever to 103° or 104°, a full strong rapid pulse, pain near the nipple, made worse by pressure or by drawing in a long breath or by coughing. There is shortness of breath, and the breathing is rapid, the number of respirations being forty to fifty per minute often causing an interruption in the speech. There is a cough, at first short, ringing and harsh, soon followed by a scanty, frothy expectoration, which soon becomes very stringy and rust-colored. There is headache, sleeplessness, sometimes nose-bleed, flushed face, some trouble with digestion and scanty, high colored urine. From the very start of the disease the patient is very sick and

much prostrated. He loses flesh rapidly and after he has been sick for a few days one who knows him very well will scarcely recognize him. The above symptoms last until the seventh, ninth or eleventh day, when the fever breaks suddenly, and within twenty-four hours the patient is on the road to recovery. In the first stage of the disease there is slight dullness upon sounding the chest and upon listening slight rattling or crackling sounds may be heard. The cough is dry and hacking. There is some difficulty in breathing and the fever rises rapidly. In the second stage there is marked dullness on sounding the chest and the breathing is very shallow. The expectoration is rust-colored; there is marked difficulty in breathing; the cough is still present; the fever is still high, but is high in the evening and low in the morning. In the third stage the signs are much the same as in the second, with the exception that chills may occur now; the prostration and weakness is very great; the expectoration is yellowish or brownish in color and the fever is still high. Lobar pneumonia is always a grave disease, especially in old people, yet many cases recover.

Treatment—At the very start of the disease give one tablet No. 16 every hour until the bowels move very freely. Give one tablet No. 13 every two hours and three tablets No. 27 every three hours. Also begin poulticing at the very start of the disease. Make two double jackets and spread flaxseed or mush poultice material thinly between the layers of each jacket. For directions as to making poultices see the chapter on Poultices, p. 124. Then keep the poultices hot by having them in a colander over a kettle of boiling water, where the steam from the boiling water will keep them hot. Place one jacket on the patient, having it well up on the neck and down to the lower end of the lungs; it must also reach entirely around the patient. Allow the poultice to remain on until it begins to grow cool, then take the hot poultice and draw it up under the cold one. After the hot poultice is in place the cold one may be removed and reheated. It is important that no air should strike the patient while the poultices are being changed. The poulticing should be kept up day and night until the fever leaves the patient. The diet must be carefully looked after, and to this end read the chapter on Diet in Disease, p. 106. Heart failure is the cause of many deaths in pneumonia,

and therefore the heart should be sustained throughout the disease. The best means of accomplishing this purpose is by the judicious use of alcohol. Begin by giving small doses of whiskey or brandy every three hours, and increase or diminish the amount as necessary. Always use stimulants in an old person or in a very feeble person; use it in those accustomed to its use, or when the pulse is feeble, rapid and irregular, or when the patient suddenly grows very weak and seems about to collapse. When the heart is weak it is also well to give one tablet No. 28 every four hours. The patient should be fed every three hours. As the patient becomes convalescent and progresses toward recovery give one tablet No. 17 three times a day before meals and keep this up for at least a month.

Broncho-Pneumonia — Broncho-pneumonia is an acute catarrhal inflammation of the smaller bronchial tubes and the air-cells of the lungs, accompanied by fever, cough, difficult breathing, large amount of expectoration and great depression. This disease is caused by exposure, disease of the heart, and some other conditions. It is seen most frequently in young children and old people.

Symptoms and Signs—This disease nearly always begins as bronchitis, and may be acute, sub-acute or chronic. The acute variety begins with a gradual rise of fever to 102° or 103°; rapid, shallow breathing, as shown by the widely dilated nose. The lower part of the lungs and the spaces between the ribs are sunken in. When the patient draws in a breath the action is short and imperfect and when the breath is blown out, the action is noisy and longer than ordinary. The pulse is rapid, from 100 to 120 beats per minute, and is somewhat compressible. The cough, which during the bronchitis was loose, now becomes tight, short hacking, dry and painful. After a short time the cough is accompanied by the expectoration of more or less thick stringy mucus. The appetite is poor, the bowels are somewhat loose, the urine is scanty and highly colored and the body is covered part of the time with perspiration.

The sub-acute and chronic varieties have the same symptoms, but the disease lasts longer and the patient becomes weaker.

Recovery from any case of broncho-pneumonia requires many

weeks. In sounding the lungs dull sounds will be noticed in portions and hollow sounds in others. Placing the ear over the lungs small bubbling sounds, and later in the disease large bubbling sounds will be heard.

Treatment—Confine the patient to bed. The diet should be liquid and very nutritious. See chapter on Diet in Disease, p. 106. Brandy or whiskey should be used throughout the attack, regulating the dose to the age of the patient. Give one tablet No. 13 every three hours and three tablets No. 27 every four hours. Allow the patient to use No. 26 by holding the tablet in the mouth until it dissolves. One tablet of this may be used every hour if it affords relief. As the patient gets well give one tablet No. 17 three times a day before meals and continue this for from four to six weeks.

Tuberculosis—Consumption—Consumption is a disease caused by the deposit of a germ in the lung tissue, and this in turn causes the lung tissue to break down or decay. The disease is accompanied by fever, cough, difficult breathing, sometimes hemorrhages from the lungs, loss of blood and great weakness. The majority of cases end in death, although some cases which receive early treatment and a complete change of climate, are cured. In the cases which are cured there is more or less loss of tissue in the lungs, and they are never perfect organs again. The germs which cause consumption are breathed in by almost every one, but the lungs must be in a particularly receptive condition in order to contract the disease. The lungs are in this condition in a patient recovering from any of the acute diseases, and are also many times in a condition to receive the germs when a person is suffering from a severe cold, slight bronchitis, or when the system is weakened from any cause whatsoever. Although a person cannot inherit consumption, yet he may inherit a tendency toward weakness of the lungs, and therefore will always be in a particularly receptive condition for this disease. We see many people who have apparently inherited this disease, and yet could the facts be investigated closely it would be found that these persons have not paid the proper attention to diet, exercise, hygiene and daily surroundings. We often see persons who are constantly exposed to consumption yet never contract the disease because of

the judgment which they use in their everyday life. A patient who is ill with consumption should consult a physician as to the methods of caring for the excreta from his body, in order that he may not convey the contagion to others. A person in whose family consumption has occurred prior to his existence or in whose family the disease exists at the present time may in a large measure relieve himself of the liability to take the disease by alternately expanding and contracting his lungs to their fullest capacity. This exercise should be practiced a number of times each day, and in connection with this may be used any sort of mild exercise which has a tendency to develop the muscles of respiration.

Symptoms and Signs—This disease begins very slowly. The first thing noticed is usually some slight disturbance of the digestive system, or the heart may be slightly irritable. In the beginning there is a light, dry hacking cough which is usually thought to be from the throat or stomach; there is some expectoration of a glairy mucus, a gradual loss in weight, the muscles lose their strength, the skin is pale, and often hemorrhages of greater or less severity occur. Sharp pain is often felt below the shoulder blades. A little later on the breaking down of the lung tissue begins, and this is announced by increased cough, very free expectoration, difficult breathing, which is much increased by exertion, chills in the morning, some fever in the evening, night sweats, increased loss of flesh and marked weakness. Even at this stage the patient will not give up, but will still insist that he is going to get well. This belief on the part of the patient is found in almost every case, and is a marked characteristic of the disease. From this point on the breaking down of lung tissue goes on quite rapidly, and the death of the patient is but a question of time. Toward the very end the feet and ankles will swell, and this denotes that the circulation is failing rapidly.

Treatment—Although the treatment of consumption is unsatisfactory in many cases, yet the disease can be treated with some degree of satisfaction if painstaking care is exercised in the selection of remedies and the treatment is begun early enough. Whenever a patient has a dry, hacking cough, and with it loss of flesh, a portion of the material which is expectorated should

be sent to a physician who has a microscope. He can examine the material and tell certainly whether the patient has consumption or not. Should a person find that he has consumption he should at once move to a high, dry climate and stay there. Go to Colorado, New Mexico or Arizona and live outdoors—live entirely out of doors; sleep on the ground and eat coarse food, take plenty of exercise, but do not overdo the matter at first. As to medicine, tonics are required all of the time, and the patient should place himself in the hands of the nearest physician that these tonics may be varied to suit the climate and to suit the individual case.

Pleurisy—Pleurisy is a fibrinous inflammation of the covering of the lungs, sometimes spoken of as a “stitch in the side.” The disease is characterized by a sharp pain in the side, a dry cough, difficult breathing and fever. It may be limited to a part, or it may involve the whole of one or both lung coverings. Pleurisy is due to cold, exposure, severe muscular exertion, injuries to the chest walls, or it may follow pneumonia, heart disease, rheumatism, smallpox, Bright’s disease or puerperal fever.

Symptoms and Signs—An acute attack begins with a chill, followed by a sharp pain in the side, which is made worse by coughing and breathing. There is some tenderness on pressure. The breathing is rapid and shallow, thirty to thirty-five respirations per minute, a short, dry, hacking cough, moderate fever and a rapid compressible pulse, ranging from ninety to one hundred and twenty beats per minute. Following the inflammation of the pleura a fluid is given off from the inflamed membrane, and this collects between the pleura covering the lungs and that lining the chest walls. As this fluid collects the cough becomes more distressing; the action of the heart is interfered with; the difficulty in breathing is greater, and the patient wears an anxious look. After a while the fluid begins to absorb and these symptoms all gradually improve. A subacute attack is the same except that it does not begin so rapidly. Looking at the chest it will be noticed that the movements of the chest walls are decreased over the affected parts. Sounding gives dullness over the affected parts and hollowness over the sound portions of the lungs. Placing the ear over the chest, crackling or squeak-

ing sounds will be heard over the affected parts. Acute pneumonia might be mistaken for pleurisy, but in pneumonia there is a pronounced chill, high fever and rust-colored sputa. Pleurisy usually lasts three weeks.

Treatment—Bleeding is very beneficial in pleurisy. Turpentine stupes over the chest are beneficial. Give one tablet No. 15 every hour until the pain is relieved, and after that one tablet every three or four hours. Give one tablet No. 28 every four hours. Have the patient eat a very light evening meal, and take nothing more until morning, not even water being allowable. An hour or more before breakfast give eight or ten tablets No. 4. Keep him quiet during the day and allow the bowels to move as often as any inclination is felt. The above treatment will be all that is necessary in any ordinary case of pleurisy.

Acute Endocarditis—This disease is an acute inflammation of the membrane which lines the heart and forms its valves. It is characterized by cough, difficult breathing, nausea and vomiting, disturbed heart action, resulting in changes in the valves or orifices of the heart. This form of heart disease is that which follows acute articular rheumatism, pneumonia, Bright's disease, and some other forms of heart disease; it also occurs with diphtheria.

Symptoms and Signs—It is usually covered up by some other disease until disturbances of the circulation attract attention to the heart. It usually begins with an increase of fever, distress about the heart, short cough, slight difficulty in breathing, vomiting, more or less persistent, increased heart action, the heart often beating rapidly and hard, with throbbing of the large vessels in the neck and noises in the ears. As the disease progresses the heart beats more slowly, the lungs are congested and the veins stand out clearly in various parts of the body. The disease usually lasts from one to three weeks.

Treatment—Let there be complete rest in bed. Give one tablet No. 28 every four hours. If the circulation becomes very weak give stimulants in small doses often repeated. The diet should be carefully looked after and only the most nutritious used. Endocarditis may produce inflammation of the muscular tissue of the heart or disease of the valves in the heart.

Inflammation of the muscular tissue of the heart may also be produced by typhoid fever or by a clogging of the large arteries.

Diseases of the Valves in the Heart are alterations in the valves or in the openings of the heart whereby the valves are incapable of closing the openings or whereby they interrupt the blood current in its normal flow. There are two sorts of valve diseases: obstructive and regurgitant.

An obstructive disease is a narrowing of an opening in the heart which obstructs the flow of the blood.

A regurgitant disease, also called insufficiency, is such a change in the valves of the heart as prevents their complete closure, thus allowing a portion of the blood to flow backward instead of forward—the true direction of the blood current. A valve in this condition can well be compared to a poor or leaky valve in an ordinary water pump. It is very hard to distinguish between the different diseases of the heart, and not only knowledge of the subject is required, but a great deal of experience; therefore the suggestion is made that when heart trouble is suspected a specialist be consulted unless the disease should be one of the two which follow.

Neuralgia of the Heart or Angina Pectoris—This disease may be defined as paroxysms in which there occur sharp pains in the heart, extending usually into the left shoulder and down the left arm. These pains are usually accompanied by a feeling that the chest is too tight and also a feeling that death is near. This disease is often hereditary, or may be due to chronic heart disease, the excessive use of tobacco, or it may be found with hysteria or epilepsy.

Symptoms and Signs—The attacks are in the form of paroxysms, and occur very irregularly. During the intervals between two attacks the patient will be perfectly well. "The patient suddenly sits up in his bed; with a cry of horror indicates that the pain is in his heart. The pain is very severe, but is of a cold and sickening character; the chest is fixed, the breathing more rapid, and a hand placed over the heart finds that the heart's action is slight and feeble. The face wears a look of horror, pale and slightly greyish; a cold sweat breaks out upon the forehead; worse than the pain is the fearful feeling of sickness and depres-

sion. 'The poor patient gasps, 'I shall die! I shall die!' and sometimes, though not often, his short but severe suffering in a few moments ends in death.' This describes the symptoms, and sooner or later the majority of all patients suffering from this disease die; either directly from the disease or from the secondary effects.

Treatment—The best treatment is to give ten grains of iodide of potassium three times a day after meals and keep this up for a number of months. This treatment will occasionally entirely cure a case. The diet must be carefully regulated and all violent exercise and emotion must be avoided. A remedy of much value is No. 17; this should be given one tablet three times a day, before meals, and continued for a long time. It is often of more value than iodide of potassium. At the time of the attack morphine is the best remedy to employ for the relief of the pain. Morphine should never be used except under the immediate direction of a physician.

Nervous Palpitation of the Heart—By palpitation we mean a fluttering of the heart, and a nervous palpitation is one in which an examination fails to discover any true heart disease. This sort of palpitation nearly always occurs in very nervous people, and is not present all of the time. The treatment must be directed toward improving the general health of the patient.

Arterio-Sclerosis—This is a disease of the blood vessels, usually occurring in persons over 40 years of age. It is sometimes not regarded as a disease, but as a result of the natural breaking down of old age. It may be produced by other things, than old age, and chief among these is the excessive use of alcohol. It may also be caused by syphilis, gout, kidney disease, rheumatism and chronic lead poisoning. This disease is found in the arteries, but very seldom in the veins. The disease is easy to be recognized, as instead of the skin being smooth about the vessels, it is irregular; under the fingers the vessels feel rough, hard, tortuous and sometimes even bony. The symptoms of this disease are so varied that it is not possible to give them except in a general way. The pulse at the wrist is nearly always hard, tense and irregular, and the vessel feels irregular and rough under the fingers. During arterio-sclerosis changes occur in the

blood vessels in the brain and often rupture of the arteries in the brain occurs. Changes also occur in the kidneys. Gangrene of the feet and legs, which occurs in old people, is nearly always produced by arterio-sclerosis, by causing a plugging of some of the arteries which carry blood to the parts. This, of course, soon produces death of the part deprived of the blood. In conclusion it may be said that all symptoms of this disease may be absent for a long time, or even entirely absent, or people who have had only a few very slight signs of the disease may suddenly develop the very severest symptoms. There is no particular remedy for this disease and all treatment must be directed to the symptoms as they arise. The treatment of arterio-sclerosis should always be under the personal direction of a physician.

Acute Catarrh of the Stomach—Acute Indigestion—

This disease is also known as mild gastritis and bilious fever. It is an acute inflammation of the lining membrane of the stomach, and with this occurs some fever, loss of appetite, nausea, occasional vomiting, pain after eating and irregular bowels. Acute indigestion may be caused by the quantity of gastric juice being too small or by it being of poor quality. Wrong diet, imperfect chewing of the food, swallowing liquids which are too hot or too cold and the improper use of alcoholic liquors may cause this disease. It may also follow such diseases as measles, scarlet fever, smallpox, diphtheria and the like.

Symptoms and Signs—At first there is loss of appetite and at times a feeling of disgust for food, a heavily coated tongue, bad taste and a bad breath, a feeling of sickness in the stomach, sometimes vomiting, first of undigested food and then acid and bitter material and finally bilious vomiting may occur; some fever is present, headache, considerable thirst, and sour drinks are eagerly sought for; the digestion is imperfect and this causes pain, tenderness over the stomach, feeling as though a heavy weight were in the stomach, and often gas will come up the throat from the stomach; the bowels are irregular. Dizziness is found in some cases. The urine is scanty. Any error in diet will make the symptoms worse, and fat or sugar will often cause "heart-burn." The active symptoms of this disease usually last about a week, but it requires a long time for the patient to regain normal digestion.

Treatment—Give the stomach as complete rest as possible. If the stomach should be overloaded when the disease first begins, empty by giving No. 32. Should the stomach seem irritable, give one tablet No. 2 every two hours. Give one tablet No. 8 every four hours and give one tablet No. 6 before each meal. Give these last two remedies for at least a month. Feed the patient carefully and with the above treatment the recovery will be only a question of time.

Acute Gastritis—This is an acute and violent inflammation of the mucous lining and of the muscular coats of the stomach, characterized by great pain, constant vomiting of blood-streaked matter and signs of collapse. This sort of stomach trouble is caused by taking poisons, such as mineral acids, arsenic, corrosive sublimate and carbolic acid, into the stomach.

Symptoms and Signs—Very soon after swallowing the poison there comes a terrible nausea, with rapid and constant vomiting; first the contents of the stomach which have been acted upon by the poison are vomited, then shreds of the lining of the stomach and clots of blood. Accompanying this is great anxiety, much depression, a weak, rapid pulse, slow and shallow breathing, a cold skin which is covered with a cold sweat, intense burning heat in the stomach, much thirst; the throat is dry and burns; the bowels move so freely as to produce purging and the face looks peaked and sunken. These signs either end in death or very slow recovery, and when a patient recovers, the stomach will always be more or less crippled. The majority of persons who take such strong poisons into the stomach die, but some few recover. The treatment of acute gastritis depends entirely upon the poison which caused it. In the chapter on poisons the treatment of each poison is taken up. The treatment for the poison which produced the trouble is the treatment for the disease.

Chronic Catarrh of the Stomach—Chronic Dyspepsia—Drunkard's Dyspepsia—This is a chronic catarrhal inflammation of the stomach in which the membrane lining the stomach and the muscular layers forming the stomach, become very much thickened and the glands, which secrete the gastric juice, become very much smaller. This disease may be caused by repeated attacks of acute indigestion, habitual use of alcoholic

liquors, malaria, disease of the heart, lungs, or liver, and by cancer or ulcer of the stomach.

Symptoms and Signs—There is loss of appetite, a feeling of gnawing and at times of fullness in the stomach, pain in the stomach and some tenderness about the stomach, the abdomen is distended, there is some nausea and vomiting, the latter often occurring in drunkards in the morning on arising—it is often termed “morning vomiting,” and the vomit consists of a thick, glairy substance which is raised only after much straining and retching; there is constant thirst and stimulants are often craved. There is often intense burning in the pit of the stomach; the bowels are constipated; the urine highly colored; the patient has trouble in sleeping and often has the “blues.” The imperfect digestion causes loss of flesh and the muscles become soft and the skin dry. Patients recover from this disease to a certain extent, but the stomach is always more or less damaged by the changes which occur in the glands which secrete the gastric juice.

Treatment—The diet should be carefully regulated. Do not allow the patient to have any fat, sweet or starchy food; he may have milk, small amounts of beef, eggs, oysters, and a few fresh green vegetables. Give one tablet No. 4 every two hours until the bowels move very freely. Have the patient drink a teacupful of hot water an hour before each meal. Give two tablets No. 33 after each meal—if two tablets do not seem to be enough give three tablets after each meal.

Ulcer of the Stomach—Ulcers may form upon the lining of the stomach and very much resemble ulcers in any other part of the body.

Symptoms and Signs—Signs of indigestion are present in all cases but they vary much in degree of severity. There is constant pain in the pit of the stomach; this is made worse by taking food, especially food that is rough or irritating; the pain is often felt in the back and is of a burning, gnawing character. There is tenderness over some parts of the stomach. Vomiting is always present and usually occurs within an hour after the patient has taken a meal; the vomited matter may be the food that has been taken, stringy mucus, or blood. If the blood is fresh it will be red and easily recognized, but if it has been in the stomach

for some time it will be dark colored and very much resemble coffee grounds. The patient may have frequent and severe attacks of "stomach ache."

Treatment—Give the stomach as complete rest as possible. Feed the patient entirely upon milk and add one teaspoonful of lime water to each pint of milk. When the pain is severe give one tablet No. 15 every hour until relieved. Give two tablets No. 33 before each meal; also give two tablets No. 24 every three hours.

Cancer of the Stomach—Cancer of the stomach nearly always occurs in persons over 40 years of age, and the end of the disease is always death.

Symptoms and Signs—All signs of indigestion may be present. The stomach is nearly always "sour;" there is much gas and the breath has a bad odor. Vomiting is present; there is a dull, heavy pain, made worse by pressure, but sharp shooting pains are rarely found. The skin is pale and the patient loses flesh. The ankles often swell. The disease usually lasts about one year, when the patient dies.

Gastralgia—Stomach Ache—Stomach ache is a painful condition of the sensory nerves of the stomach, produced by irritations of various sorts.

Symptoms and Signs—Dr. Romburg describes an attack thus: "Suddenly, or after a feeling of pressure about the abdomen, there is a severe griping pain in the stomach, usually extending to the back, with a feeling of faintness, a shrunk countenance, cold hands and feet and an irregular pulse. The pain becomes so great that the patient cries out. The stomach is either puffed out like a ball or drawn in, with the muscles of the abdomen tense and hard. Pressure is well borne and quite often the patient presses the pit of the stomach against some firm substance or holds it with both hands. The attack lasts from a few minutes to a half hour or longer; then the pain gradually subsides, leaving the patient much exhausted; or else it ceases suddenly, with belching of gas, or with vomiting and with a gentle, soft perspiration, or with the passage of reddish urine." Besides such severe attacks milder forms are often met with.

Treatment—Give one tablet No. 15 every half hour until the pain ceases. To a child give one tablet No. 19 every half hour until relieved. Carefully regulate the diet and bowels after the attack has occurred, that a recurrence may possibly be prevented.

Dyspepsia—Indigestion—Heartburn—This is a derangement of the stomach in which the quantity of gastric juice is not sufficient, or the quality is such that it will not digest the food it comes in contact with. The disease is caused by imperfect chewing, of the food, bolting of food, eating overly large quantities of food, eating the same sort of food for a long time, disorders of the nervous system from worry and fatigue, and habits or occupation where little or no exercise is taken.

Symptoms and Signs—The symptoms and signs are: an appetite which is capricious—the patient will call for certain foods, and when they are placed before him the desire for them will be gone or the appetite may be entirely lost. There is difficult digestion with a feeling of weight or fullness in the stomach; heartburn; gas in the stomach; belching and at times vomiting of sour material; pain in the pit of the stomach after eating; the bowels are constipated; the urine is nearly always scanty and highly colored, although in very nervous persons it may be pale. There is drowsiness after eating and wakefulness at night; the patient forgets things easily; there is often headache; flashes of heat are common and the heart often flutters and palpitates.

Treatment—Regulate the diet. Do not allow the patient to eat sweet, fat or starchy food. The diet should consist entirely of milk; lean meat, eggs, oysters, and a few fresh green vegetables. The patient should eat small amounts at a time, chew the food thoroughly and rest for at least a half hour after eating. Use but small amount of liquids with the meals. No stimulant of any sort should be used with the meals. Give one tablet No. 6 before each meal and one tablet No. 33 one hour after each meal.

Inflammation of the Bowels—This is a catarrhal inflammation of the mucous membrane lining the small intestine. The disease is caused by food that does not agree with the stomach and by exposure to cold and wet when quite warm.

Symptoms and Signs—This disease begins with a general feeling of languor, followed by chilliness and fever, the fever being

102° or 103°. This is followed by colicky pain which is very severe, growing better and again worse, the pain being above the navel, and over the seat of pain will be noticeable tenderness. The bowels become quite loose; the stools are yellow or greenish yellow in color and mixed with undigested food; when the stools are very numerous, they become watery. Nausea and vomiting often occur. The appetite is poor and this, with the great waste resulting from the bowels running badly, soon produces extreme weakness, and the patient loses flesh rapidly.

Treatment—Rest the bowels by a restricted diet. Feed the patient entirely upon milk and broths. Keep him quiet in bed. Give to adults one tablet No. 29 every three hours; to children one tablet No. 15 every four hours. Place cloths wrung out of hot water over the bowels or a weak turpentine stupe may be used; either one will give relief.

Colic—Gripes—This disease is a spasm of the muscles of the intestines. It may be caused by constipation, presence in the intestine of food which cannot be digested, gas collecting in the intestine, too much bile being discharged into the intestine from the liver, lead poisoning, and by malarial fever or rheumatism.

Symptoms and Signs—“There are attacks of pain, spreading over the abdomen, and following this is a period of ease. The pain is spoken of as tearing, cutting, pressing, twitching and pinching. The patient is restless and seeks relief in changing his position and in pressing hard against the abdomen. The skin is liable to be cold and the face to look pinched. The pulse is small and hard. The abdomen is hard and tense, whether puffed up or drawn inward. There is often nausea and vomiting and a desire to go to stool. The bowels are usually constipated. The attack lasts from a few minutes to several hours. The attack ceases suddenly with a feeling of great relief, although some soreness may remain for several days.”

Treatment—Give one tablet No. 29 every fifteen minutes until pain is relieved. After the pain has stopped give one tablet No. 9 every hour until ten tablets have been given and with the last tablet of No. 9 give two tablets No. 4. No other treatment will be needed.

Cholera Morbus—This is an acute inflammation of the mucous membrane lining the stomach and intestines. It is a disease of summer and early autumn and is caused by eating unripe fruits and vegetables and by food fermenting in the stomach

Symptoms and Signs—This disease begins very suddenly, usually after midnight, with chilliness, an intense sick feeling in the stomach, followed by vomiting and purging. Accompanying these symptoms are distressing burning or tearing pains or colic in the abdomen. At first the vomit is the ordinary matter from the stomach, but this soon changes to a very liquid vomit, and the stools, which are normal at first, soon become liquid and whitish or greenish in color. The patient becomes weak very quickly; the skin is cold and covered with a clammy sweat, and the pulse is quite feeble. There is intense thirst, but when a drink is given to the patient, it is at once vomited up. To add to the distress of the patient, severe cramps occur in the muscles, especially in the calves and the large muscles of the arms and thighs, and in the fingers and toes.

Treatment—Give one tablet No. 29 every fifteen minutes until six doses have been given. If the patient is very weak a little brandy or whiskey may be given every two or three hours. The thirst is best satisfied by small pieces of ice, but do not allow the patient to have liquids in any form. After six doses of No. 29 have been given, stop giving this remedy and give one tablet No. 34 every three hours. The patient should live entirely upon boiled milk and bread for a few days and for about ten days should take one tablet No. 8 after each meal.

Hemorrhoids—Piles—Hemorrhoids or piles are enlargements of the veins of the rectum. The veins which enlarge are covered with the mucous lining of the rectum; they enlarge in spots only, and in enlarging push the mucous layer out in the form of nodules or bunches. When these nodules or bunches are pushed out so far as to protrude from the anus they are known as external piles, and when they are not pushed down as far as the anus they are known as internal piles. A single pile will vary in size from that of a pea to that of a walnut. The piles vary in size according to the amount of blood that is in them,

but they are not composed entirely of blood vessels, for the thin mucous layer which covers them thickens and swells and forms a part of the pile. Piles are nearly always bluish in color. They are often caused by constipation, by disease of the liver, by improper diet, but in many cases there seems to be no cause.

Symptoms and Signs—Many people have piles who are not annoyed at all by the tumors, while other people suffer pain and discomfort all of the time. The chief symptom of piles is a constant burning pain at the anus which is worse immediately following a movement from the bowels. If the piles are severe at all they inflame and cause the near parts to inflame also and this gives rise to pain. The tumors may be in such a position as to be forced through the anus at every movement from the bowel. In such a case they are extremely painful until they can be pushed back far enough so that the muscle which closes the anus will not pinch them. Piles and the inflammation which accompanies them often produce little cracks in the skin about the anus, and these are extremely painful. The presence of the enlarged blood vessels, together with the swelling and inflammation, often cause bleeding, and blood will appear in the stools. When there is any considerable amount of blood the disease is spoken of as "bleeding piles." The symptoms of piles are varied, but are so well known by everyone that further remarks are unnecessary.

Treatment—When piles are large and very troublesome the only cure which is practical is the removal of the tumors by a competent surgeon. In milder cases see that the bowels move freely and easily each day. One tablet of No. 16 taken each morning before breakfast will produce the desired effect in most cases. Should this not do the work take one tablet No. 16 at night and one in the morning. The food should consist of fruits, vegetables and grain foods.

For local use the following will be of benefit: Tannic acid, 30 grains; tincture of opium, 10 drops; vaseline, 1 ounce. Mix thoroughly and apply to the piles every evening. See Appendix for special pile remedy.

Habitual or Chronic Constipation—A persistent tendency to constipation is a frequent symptom in many different diseases, where it is almost always due to a lack of the

normal twisting movements of the intestine. In many instances this diminished energy in the intestine is only one symptom of general weakness of the body. Thus in all possible forms of chronic disease where we find loss of flesh and strength the movements of the intestines become sluggish and the movements from the bowels delayed. A small amount of food, especially when composed largely of fluids, and much rest in bed or a small amount of physical exercise, or all of these conditions often account for the constipation frequently seen in patients with chronic disease. In other cases the cause of habitual constipation is disease of the intestine itself. In all forms of catarrh of the intestines there is a tendency to constipation; also in disease of the peritoneum and in disease of the liver. Diseases of the brain and spinal cord often produce chronic constipation.

While constipation, in the diseases thus far described, is a symptom which depends upon the disease, there is a form of chronic constipation where the constipation is the chief symptom, and it must therefore be considered a disease by itself. Many people who look perfectly well and are entirely able to attend to their business, are constantly troubled because there is not a movement from the bowels every day, as there should be, but only once in three or four days or less often. Besides the trouble with the bowels such patients complain of dizziness, pressure, coldness, headache and disturbed sleep. Very often nervous symptoms are a prominent sign of chronic constipation.

Treatment—The treatment of chronic constipation requires care and patience. The diet must first be regulated. A patient suffering from chronic constipation should eat plenty of food—meat, vegetables and fruits should all be used, and three good meals should be disposed of each day. It is a good plan to drink a glass of cold water each morning before breakfast, and such foods as graham and rye bread, large amounts of butter, grapes, dates, figs, nuts and honey will be of much benefit. Having paid attention to the diet, appoint a regular hour each day for a passage from the bowels, and at that time go to stool and remain until a movement is secured. As to remedies the one of most value is No. 16, and the patient should take one tablet at night and one in the morning before breakfast. Should this not be sufficient two tablets may be taken at a time; then as the habit of daily

movement asserts itself the remedy may be gradually dispensed with, and in time a complete cure will be produced.

Obstruction of the Intestines—Closure or obstruction of the intestines occurs occasionally and may be due to tumors in the intestine, obstruction in the intestine from the impacting of excreta, from impacting of gallstones or from some foreign body which has been swallowed and has lodged in the intestine. It may also be due to the intestines twisting and forming kinks in the tube, or one portion of the intestine may slip inside of another portion, set up an inflammation, and close the tube in this way. The pressure of a tumor upon the outside of the intestine may also cause obstruction. The symptoms of intestinal obstruction are severe and varied and the treatment cannot possibly be carried out at home; hence when such a thing is suspected send for a physician.

Appendicitis—This disease is an inflammation of the small worm-like appendage which is situated at the junction of the small and large intestines. This appendage is known as the vermiform appendix. The disease is caused by particles of food or the seeds of berries or fruit lodging in the vermiform appendix; these set up a mild inflammation, and a certain amount of decay goes on in the contents of the appendix, swelling begins and soon pus begins to form and the passage from the appendix into the intestine becomes stopped and an abscess is formed.

Symptoms and Signs—Appendicitis begins with a feeling of weight and soreness in the abdomen, on the right side and above the hip bone. Very soon sharp pain is felt and a swelling is noticed about the seat of pain. At times a hard lump may be felt, which is very tender. The disease comes on slowly and may not be noticed at all until there is considerable swelling. Aside from the symptoms given, chills, slight fever, spells of sweating and a throbbing in and about the swelling may be present.

Treatment—The best treatment for all cases in which an abscess is surely present is an operation. When the case is not severe enough for this apply cloths wrung out of ice water over the swelling and paint the parts well with tincture of iodine. If the pain is severe give one tablet No. 25 every two hours and two

tablets of No. 4 every four hours. Should the case be severe call a physician.

Peritonitis—This is an inflammation of the membrane which covers the intestines and which lines the abdominal cavity. The disease may be caused by intense cold, by the irritation of blisters, by blows upon the abdomen, by inflammation of the stomach or intestines, by rupture and by certain diseases.

Symptoms and Signs—There are three forms of this disease and the signs in each variety differ somewhat. In the acute form the disease begins suddenly with a chill and fever ranging from 102° to 103° ; the pulse is tense and wiry and from 100 to 140 beats per minute; there is severe cutting or boring pain, a great amount of tenderness over the seat of the pain in the abdomen; the patient lies on his back with the thighs drawn up; the abdomen is tense, hard and bloated; the appetite is poor; nausea and vomiting are found in many cases, and hiccough is not uncommon. Occasionally in cases of acute peritonitis the temperature will fall below the normal, usually not lower than 98° . The secondary form is caused by some other disease, as typhoid fever. It begins in one spot and gradually spreads; thus typhoid fever may cause a small rupture in the intestine and this in turn will cause an inflammation of the peritoneum. This form is always accompanied by severe pain; the fever rises, the pulse is hard and vomiting is present. The symptoms continue from six to eight days, when they begin to grow better, and a tedious convalescence begins, or the pain and tenderness grow more severe, the strength fails, the skin is cold, the pulse rapid, the face has an anxious expression, with pinched features and sunken eyes, and death finally occurs. The chronic form begins with chills which occur very irregularly; there is fever and some sweating; the abdomen is distended; there are periods of constipation, followed by like periods of diarrhea; there is tenderness over the whole abdomen; colicky pains occur during the digestion of a meal, and the patient loses flesh and strength rapidly.

Treatment—Apply cloths wrung out of hot water over the abdomen. Feed the patient upon a light sick diet composed for the most part of liquids. Give one tablet No. 25 every hour the first day and one tablet No. 25 every three hours after that. Also

give one tablet No. 27 every four hours. If the patient is weak at all use stimulants, one teaspoonful of whiskey or brandy every three or four hours. If this is not sufficient a larger amount may be used. As the patient gets better and the pain ceases entirely give one tablet No. 17 three times a day before meals and continue this for from five to eight weeks.

Dropsy—This disease is a collection of fluid in the abdominal cavity. Dropsy is caused by disease of the heart, kidneys, liver or lungs. The amount of fluid in the abdominal cavity ranges from a few teaspoonfuls to many gallons. It is generally of a straw color or at times greenish.

Symptoms and Signs—The disease comes on slowly and the abdomen is usually considerably swollen before the disease attracts any attention. Constipation is always present and is caused by pressure of the fluid upon the bowels; the urine is also scanty from the same cause. The breathing and action of the heart are both interfered with from pressure of the fluid upward. The navel is forced outward by the same cause. Laying one hand on the side of the abdomen and gently tapping the opposite side with the other hand will give a wave-like feeling.

Treatment—Medical treatment is of little value, and when dropsy is present call a physician and have him remove the fluid by operation. He can then suggest treatment for the disease which caused the dropsy.

Jaundice—Jaundice is an acute inflammation of the mucous membrane which lines the bile ducts and that part of the intestine which is near the opening of the bile duct into the intestine. It is caused by excesses in eating and drinking, by debauches, by malaria and by warm days followed by cool nights. At the beginning of the disease the bile ducts become closed and the bile becomes dammed up in the gall bladder and is absorbed by the blood vessels in the liver and thus carried to various parts of the body, where it shows itself by a yellow color.

Symptoms and Signs—The disease begins with distress in and about the stomach, a coated tongue, loss of appetite, nausea and sometimes vomiting, looseness of the bowels and a slight amount of fever. In from three to five days the white of the eyes becomes

yellow and this yellow color gradually spreads over the entire body. The fever disappears, the skin becomes dry, harsh and itchy, the bowels become constipated, the stools whitish or clay colored, and accompanied by much gas and colicky pain. The urine is heavy and dark colored. When the whole surface is yellow the skin will be found to be cold, the heart action slow and much tenderness will be noticed over the liver. In from three to five days from the time the yellow appears, the symptoms begin to improve and in from one to two weeks the skin will be of normal color and the bowels will move normally.

Treatment—Have the patient take a warm bath, night and morning and add one ounce of carbonate of potassium to the water for each bath. Give two tablets No. 4 every two hours and one tablet No. 27 every three hours. The diet should consist almost entirely of milk and no fat, sweet or starchy food should be allowed at all. After the jaundice disappears give two tablets No. 33 three times a day after meals and continue this for from two to four weeks.

Gallstones—Biliary Calculi—These are hard, stone-like bodies which form in the gall bladder and give rise to severe pain on their passage from the gall bladder to the intestine.

Symptoms and Signs—The presence of gallstones is not usually detected until one or more begin the passage from the gall bladder to the intestine, when they produce a very severe colic, known as gallstone colic. This colic begins very suddenly at the very instant that the gallstone passes into the duct leading from the gall bladder to the intestine; the patient is seized with a piercing, agonizing pain in the region of the liver, and this pain rapidly spreads over the abdomen and right chest and many times extends to the right shoulder and arm. The muscles of the abdomen are cramped and tender. Nausea is always present, and many times there is vomiting. The pulse is small and feeble, the skin cool and the face shows pain and is somewhat anxious in expression. The pain lasts from an hour or two to several days, and stops as quickly as it began when the gallstone has passed from the gall duct into the intestine. Jaundice (yellow skin) usually follows the attack of pain, but this soon disappears.

Treatment—The best treatment is a drug which will not keep

and which therefore is not put in the Cabinet; it will be found in the Appendix and will certainly cure gallstones if used according to directions. Should an attack of this sort come on give one tablet No. 25 and repeat in a half hour if necessary.

Congestion of the Liver—Bilousness—This disease is caused by a fullness of the blood vessels of the liver and, as a result, the liver enlarges. It is caused by heat, constipation, malaria, excess in eating and drinking and excessive use of alcoholic liquor.

Symptoms and Signs—The patient has a “tired feeling;” the limbs ache; there is a slight amount of fever in the evening; there is headache; the spirits are depressed; the tongue has a yellowish coating; there is no desire for food; some nausea is present; the bowels are constipated, the urine highly colored; the whites of the eyes are yellow; the skin a muddy color, and there is a feeling of weight, fullness and soreness about the liver. The disease lasts about a week.

Treatment—Give one tablet No. 9 every half hour until the bowels move freely. As soon as the bowels move give one tablet No. 4. Have the patient live entirely upon milk for a few days and give one tablet No. 33 before each meal. If there is some pain about the liver place cloths wrung out of hot water over the seat of pain.

Hobnailed Liver—Gin Drinker's Liver—This is a form of disease of the liver which is quite common among those addicted to the use of alcohol. The disease is very slow in its progress and the symptoms are not well marked at first. The treatment is largely in the way of attention to diet, hygiene and correct, temperate living.

Neuralgia—Although every pain is of course excited by irritation of the nerves, still the name neuralgia is given to a certain special variety of pain. The characteristics of this particular nervous pain are as follows: First, it is felt along the exact course of some nerve or its branches; second, it is usually a pain of some severity; third, as a rule, the pain is not present all of the time, but grows better or worse at times.

In many cases the cause of neuralgia cannot be discovered but

in other cases facts may be known which either directly or indirectly cause the trouble. Neuralgia occurs most often in middle life, in nervous people and in people who are not strong physically. Neuralgia may be caused by cold or wet, by wounds, bruises, surgical operations, diseases of the bones or of the membrane which covers the bones, and by tumors, ruptures and aneurisms.

Symptoms and Signs—The neuralgic pain begins either quite suddenly, or more often after certain mild sensations, such as cold feelings, prickling, slight painful sensations, etc., have been noticed for some time. The pain during an attack is usually severe and is described as burning and boring, or shooting and tearing. The patient can usually trace the nerve by the pain. Cold air, mental excitement and movement of the part affected often produce an increase of the pain. The skin near the seat of pain is usually very sensitive and tender to slight pressure, but deep and continued pressure over the nerve relieves the pain during time of pressure. When the pain is severe enough to interfere with sleeping or eating, the whole system may be affected, otherwise the effects of neuralgia are entirely local.

Treatment—It is important in people who have suffered from neuralgia to prevent the return of the disease if we can. For this object we must first consider the strengthening of the whole body in order to make it better able to resist the action of any causes of disease. The things to be chiefly looked after in this connection are proper food, good air, baths and general hygienic surroundings. In treating neuralgia look for a cause which may be treated. For example when neuralgia is caused by the pressure of a tumor upon a nerve the removal of the tumor will cure the neuralgia. The use of electricity in neuralgia is often of much value, and the best method of applying it is by an ordinary family battery. Place one sponge along the spine and pass the other over the seat of pain. A mustard plaster over the point of pain is sometimes of value. For the medical relief of the symptoms give one tablet No. 35 every four hours.

Habitual Headache—Sick Headache—Chronic Headache—Very many people are subject to headache; in some cases it is spoken of as headache, in others as nervous or sick headache.

Headaches occur most often in nervous and in overworked people, but may occur in anyone. They are caused by disorders of digestion, by constipation, by catarrh of the nose, throat or ears by eye strain, and in some cases there seems to be no cause whatever. One of the most frequent causes of headache is eye strain. This is especially true in young people, and is very often overlooked. When headache occurs in young or middle aged people it is always well to have the eyes examined by a competent specialist. In many cases the trouble will be removed by the use of a pair of perfectly fitted spectacles.

Treatment—For the cure of headache keep the bowels and digestive apparatus in good working order, and for the relief of attacks take one tablet No. 30 every hour until the headache ceases.

Paralysis—By paralysis is meant the loss of voluntary motion in the muscles of the body controlled by the will. A distinction is made between the complete loss of the power of active motion and the weakening of it. In complete paralysis of any part of the body or of a single muscle even the slightest voluntary motion cannot be produced in it; while in the weakening, or partial paralysis of a part certain movements are still possible, but they are more or less below the normal in strength, extent and duration. Paralysis or partial paralysis is due to disease or injury of portions of the brain, spinal cord or nerves. It may also be produced by pressure upon portions of the brain or spinal cord, as in the rupture of a blood vessel in the brain or the formation of a tumor about the brain, cord or nerves. Certain poisons, as lead, copper, arsenic, etc., also cause paralysis at times. Paralysis often follows certain acute diseases.

Symptoms and Signs—When a patient discovers that it is impossible to move certain members or muscles of the body we know that a paralysis exists. In some cases of paralysis the muscles retain their normal size for years, while in other cases they very soon shrink and become much smaller than normal. In some cases the paralyzed parts may be moved easily while in others the muscles contract and little or no motion can be produced. In paralysis spasms of the muscles occur and these spasms are of many varieties and show themselves in many differ-

ent degrees of severity. The symptoms of the various forms of paralysis would carry us into a long discussion of the brain and nerve centers, and even then we would be unable to give any clear-cut and definite instructions, hence we will not consider the subject further.

Treatment—In general paralysis should be treated by the use of electricity, baths, rubbing, careful diet, hygienic surroundings and in the way of medicine No. 17 will be of most service, regulating the dose according to the severity of the case.

Injuries of the Spinal Cord—In spite of the protected position of the spinal cord it is often severely injured. The most frequent causes of injury are fractures or dislocations of the spinal column, or "backbone." The spinal cord is often injured by gunshot wounds and by stabs. Injuries to the cord very often produce paralysis of some part of the body. In severe cases of injury to the spinal cord death occurs in a few hours or days or a permanent paralysis results.

Treatment—The treatment should first be placed in the hands of a surgeon, as many cases can be relieved or cured by an operation. If it is not a case for the surgeon put the patient to bed upon a soft bed, guard carefully against bed sores by bathing often with alcohol and by rubbing the parts with glycerine, to which add ten grains of tannic acid to the ounce of glycerine. Apply ice constantly to the injured part and later on use hot baths and electricity. For use in cases of this sort and in all cases of paralysis, the ordinary small, home battery will be of sufficient strength.

Locomotor Ataxia—Tabes Dorsalis—Consumption of the Spinal Cord—This is a chronic disease of the central nervous system and consists of the death of a portion of the spinal cord. Very little is known as to the actual cause of this disease, though many theories are advanced. This disease is found most often in persons of middle age, and more often in men than in women.

Symptoms and Signs—The disease begins gradually with sharp, darting pains in the lower limbs, and with these occur disturbances in digestion and some trouble with the kidneys or bladder. Very soon the feet become numb and the patient is unable

to tell whether he is walking on hard or soft substances. If the upper part of the cord is affected the patient will be unable to button his clothing. Soon the patient becomes unable to walk in a straight line with the eyes closed, and can only do so with difficulty with the eyes open; he is unable to stand erect with the feet close together, and as the disease progresses he throws his legs and feet about in a most grotesque manner. The power of the muscles is not lost, for with support the patient will kick or strike as hard as ever. Very early in the disease there is difficulty with the sight; the patient sees double or is unable to distinguish between colors. As the disease progresses, the sensation becomes much blunted, and it is several minutes before the prick of a pin will be felt. The patient will be unable to tell hot from cold. Flesh is lost rapidly. Some cases where treatment is commenced at the very start recover, but death is the end of the majority.

Treatment—Rest, with absolutely nothing to do, is of first importance. Cold may be used along the spine. The diet should be wholesome and easily digested and cod liver oil is of value to keep up the strength. Give one tablet No. 17 three times a day after meals. If pain is present try to relieve it with No. 13 or No. 30. If these will not relieve the pain use No. 25 and give just enough to control the pain.

Infantile Paralysis—This disease is a rapidly developing inflammation of a portion of the spinal cord, and it occurs suddenly in children.

Symptoms and Signs—The disease usually begins suddenly with a low fever which lasts a few days, and when the fever has left it is noticed that the child is paralyzed. The paralysis may affect both arms and both legs, the legs alone, or only one of the four extremities. The paralyzed part will not be as warm as the rest of the body and will be somewhat blue. After a few days the paralysis will improve somewhat, but the muscles will waste rapidly until nearly all of the muscular tissue is gone.

Treatment—As soon as the paralysis appears complete rest must be insisted upon. Allow hot water to run from a fountain syringe along the spinal column—do this for fifteen minutes very hour. Give one-half tablet No. 27 every three hours and have a physician suggest further treatment.

Congestion of the Brain—This is due to an overfullness of the blood vessels of the brain. It may be produced by excesses in eating and drinking, excessive use of alcohol, sunstroke, prolonged mental labor and by some other causes.

Symptoms and Signs—Among the first signs is a "rush of blood to the head," which is made worse by lying down. There is headache, with darting neuralgic pains, disturbance of sight and hearing, sparks before the eyes, buzzing in the ears, etc. The pupils of the eyes are small; there is dizziness; the mind is blunted; the patient cannot concentrate the attention; the temper is irritable and the patient may say and do queer things. The face is red, the eyes bloodshot, the vessels in the neck throb and the sleep is disturbed by dreams and jerking of the limbs. If the attack is very sudden unconsciousness may occur.

Treatment—Elevate the head and apply cold cloths or ice to the head and at the same time apply heat to the feet and legs. Give one tablet No. 4 every two hours until the bowels move freely and give two tablets No. 7 every two hours.

Apoplexy—Hemorrhage of the Brain—This is the sudden breaking of a blood vessel in the brain and the escape of the blood into the brain tissue, causing pressure and more or less destruction of brain tissue.

Symptoms and Signs—Some cases begin with warnings and others without. There is headache, dizziness, spells of deafness or blindness, feelings of numbness in the arms or legs and a constant dread of an attack. The attack begins with vomiting, which is followed by partial or complete insensibility; the breathing is slow, irregular and noisy. When the breath is drawn in the paralyzed cheek will be drawn in, and will be puffed out when the breath is blown out. The pulse is slow and full, the face is flushed, the eyes bloodshot, the vessels in the neck throb and the temperature is below normal. If unconsciousness continues longer than twenty-four hours death nearly always follows. When consciousness returns it usually does so in from two to three hours, and with it comes headache, confusion of the mind, more or less numbness and paralysis over one side of the body.

Treatment—If the patient feels an attack coming on the best way to stop it is to bleed the patient at once and give four tablets

No. 4. As soon as the bowels move give two tablets No. 7 every three hours and keep this up for from four to seven days. When the attack comes on loosen the clothing, elevate the head, remove everything that may be tight about the throat or chest, place the patient in a cool room, have no noise of any sort about, place the patient far enough over on one side as to permit whatever secretion may be in the mouth to run out and not down the throat, place cold cloths or ice on the head and a mustard plaster on the feet and lower part of the legs. If the face is pale and the pulse irregular give stimulants. If the pulse is strong give one tablet No. 28 every three hours after consciousness is regained. For the headache and delirium give one tablet No. 30 every four hours. After the patient gets better use electricity for the paralyzed muscles.

Tumors of the Brain—A tumor of the brain is either a growth in the brain substance or in the membrane covering the brain or in the blood vessels of the brain.

Symptoms and Signs—A sign always found in tumor of the brain is a headache which is constant and which gradually grows more severe. Other signs are: defects in vision, even blindness; defects of hearing, taste and of speech, the latter due to paralysis of the vocal cords; dizziness, and associated with this is nausea and vomiting; convulsions may occur; the patient may become cross-eyed; sensations of numbness and coldness may occur in different parts of the body.

Treatment—The treatment of tumors of the brain is very unsatisfactory unless they can be treated by a surgeon, and even then the benefit is doubtful. Treat the various symptoms as they arise and take as good care of the patient as possible. There is no general treatment for this disease.

Delirium Tremens—Alcoholism—These names are used to indicate the physical and mental conditions produced by the abusive use of alcoholic liquors.

Symptoms and Signs—In the majority of cases delirium tremens results from a prolonged debauch in an old drinker. It begins with wakefulness, an irritable, excitable manner, followed by the characteristic illusions and hallucinations, during which snakes and all forms of reptiles are seen and these cause the most intense

horror and fear in the victim. Defects in the senses of smell and hearing also occur; queer noises and horrid odors will be spoken of. This marked excitement is followed by great depression, during which the skin is cold and clammy, the pulse feeble, the muscles weak, the mind not at all clear, waketulness is pronounced and some fever is present. An attack of delirium tremens usually lasts about two weeks, although death may occur at any time from heart failure, hemorrhage of the brain, or alcoholic pneumonia. As soon as the patient is able to sleep well he begins to get well. He will awake from natural sleep with a clear mind and a desire for food.

Treatment—The patient should be placed in a room away from other people and should have a skillful nurse. Allow very small quantities of alcohol at first, and gradually cut the supply until none at all is given. Feed the patient upon milk, eggs, oysters, soups, etc.; in fact upon an easily digested sick diet. Give five tablets No. 7 every three hours. Give five grains of chloral hydrate every two hours until the patient falls asleep, then do not give this remedy again.

Heat Stroke—Sunstroke—This is a depression of the vital powers as a result of exposure to excessive heat. The affection may manifest itself as congestion of the brain, as heat exhaustion, and as true sunstroke. For the first mentioned see article on congestion of the brain.

Symptoms and Signs—Heat exhaustion begins with a rapidly developed feeling of weakness and prostration; the skin is cool, the face pale, the voice weak; the pulse is rapid and feeble; the breathing is faster than normal; the sight grows dim and indistinct, noises are heard in the ears and the person becomes partially or wholly unconscious.

Sunstroke. The person suddenly becomes unconscious; the skin is red and hot; the whites of the eyes are bloodshot; the breathing may be rapid and shallow or slow and noisy; the pulse is quick and may be either bounding or weak; the temperature will be from 105° to 110°; there will be no sweating, and death is liable to occur very soon.

Treatment—Treatment for heat exhaustion is: Place the patient on his back with the head low down and give a good

dose of whiskey or brandy at once. Then place in bed with cold cloths on the head and heat to the feet and legs. Cover the patient up well in bed and get the sweat started freely; allow him to sweat for two or three hours, then give a cool sponge bath and transfer him to a dry bed. Keep the cold cloths on the head and give one tablet No. 27 every two hours. Also give one tablet No. 17 every four hours.

The treatment for sunstroke is: Place the patient in a cold bath at once and rub thoroughly with ice water; keep ice on the head constantly. Give one tablet No. 13 every two hours and one tablet No. 27 every three hours. Inject cold water into the rectum; keep the patient in cold water or wrapped in sheets wrung out of ice water. If the heart becomes very weak and the patient seems much depressed give stimulants, otherwise do not use stimulants in sunstroke. As the patient recovers somewhat use the cold applications only just enough to keep down the fever and stop giving No. 13. Continue giving No. 27 every three hours, and give No. 17 three times a day before meals. In any case of overheat the patient will need to be very careful for a long time. Avoid excessive heat and all excesses of living of whatever sort. Live only on the plain foods, and use no coffee, tea, tobacco, nor alcoholic liquors of any sort.

Hysteria—This is a disorder of the nervous system, of the nature of which it is impossible to speak definitely. In many cases hysteria comes on immediately after violent emotional agitation. Hysterical convulsions or paralysis may be caused by great terror, violent anger, or any unusual agitation. A single instance of mental excitement may produce hysteria, as in the case of a young girl who was awakened at night by the house being on fire and her room full of smoke. As a result of her breathing the smoke she had some severe throat trouble, and later on when the throat was entirely well developed hysteria to such an extent that she was unable to speak out loud. Many such instances occur in the practice of every physician.

The cause of hysteria is in many instances entwined about the most private affairs—anxiety, sorrow, disappointed expectations, abandoned hopes, and in brief everything which can depress and overwhelm the mind, are the factors which may at last excite the nervous derangements of hysteria. Hysteria may develop with-

out any specially noticeable cause. Among influences of the mind which favor the development of hysteria nothing aids more than a bad education. The whims of the child are not controlled, its will is not strengthened, nor its energy developed; its imagination is unsuitably and excessively stimulated, or its intellectual power is overtaxed and prematurely ripened.

Symptoms and Signs—In every case of known hysteria, or when the disease is suspected, we must examine the patient for certain symptoms and signs which are so common in hysteria, and in part so peculiar to it that they often enable us to certainly know that hysteria is present. The most important, because the commonest, of these signs is some disturbance in sensibility. Very rare indeed is a case of hysteria met with in which there is not some change in sensibility. Therefore test the whole body carefully for numb spots or spots where the ordinary sensitiveness of the skin is exaggerated; also test the sight, smell, hearing and taste and ascertain if all are normal. In many cases a pin can be stuck through a fold of the skin and no pain be felt. This condition may be over the whole body or only in spots. A partial loss of sight or the inability to distinguish between colors may be present. The patient may not be able to detect sweet or sour by the taste, and odors may become confused. All these symptoms are important, as they are rare indeed in actual disease. Sometimes exactly one-half of the body will be insensible to pain, while the other half will be normal. Again the patient may complain of certain spots where even the slightest pressure produces pain; however, if the patient's mind can be fixed upon something else very firm pressure upon these same spots will produce no pain whatever. Hysterical persons may become paralyzed in various parts of the body very suddenly, as in hysteria from fright, or it may come on slowly. Hysterical paralysis is a paralysis of the will. The patient has lost the power to will a movement of the affected muscle. Very often the patient will move the legs about very well when lying down, but when urged to stand up or walk the knees double up, the patient begins to tremble, the breathing grows rapid and jerky, and there is not the slightest effort made to move the legs. If only one leg be paralyzed the gait is peculiar; the sound limb makes long strides, while the paralyzed one is held perfectly stiff and is often

dragged along with a loud shuffling sound. In severe hysteria there may be high fever when the temperature is taken under the tongue, but when taken in the rectum the same case will show no fever whatever. Colicky pains, obstinate constipation, occasional diarrhea and similar symptoms are often met with. Hysterical persons are irritable and emotional, easily depressed, sensitive, whimsical, and subject to violent extremes of feeling. They are inclined to exaggerate their sufferings, exact a great deal of attention, and are anxious to excite sympathy. They have little energy or force of will, but they are sly and obstinate in carrying out any pet desire. Again they can be very amiable and attractive if they take the fancy. They are almost invariably clever. Hysteria is not often seen in dull or stupid persons. These symptoms represent many cases, but not all. Hysterical patients very frequently present no very great disturbances, but complain merely of all sorts of derangements, sometimes of one kind and sometimes of another, and yet are able to perform their daily duties fairly well.

In regard to the severity and variety of hysterical attacks, they are so manifold that an exhaustive account of all the possibilities cannot here be given, but certain features and details are so common in them and recur so often that a consideration of them is often in itself sufficient to name the disease. The mildest form of hysterical attack consists of a feeling of distress, anxiety, dizziness and especially of a loss of voluntary control of the body. The patient sinks on a bed or chair, closes the eyes and becomes incapable of action or speech. Usually the breathing is more rapid, there is winking of the eyes, trembling, etc. Very often the heart palpitates quite rapidly during an attack. In such cases if water is thrown upon the patient without too great a regard for the feelings of the patient, recovery is very rapid. In some cases of hysteria the breathing becomes very rapid—as many as 200 respirations per minute have been noted. Hiccough, loud sobbing, grunting, etc., have been seen in hysteria. Patients will sometimes talk continually to themselves, usually very rapidly and with frequent repetitions of the same word or phrase. Sometimes patients will complain of a ball in the throat which changes its position somewhat. This is a sure indication of hysteria, as it is found in no other disease.

The symptoms given have been confined to the most important and frequent signs and yet even this brief outline serves to show what an infinite variety of shapes the disease may assume.

First: In one class of cases there are no nerve symptoms whatever, the patient merely displaying the general mental condition characteristic of hysteria: she is easily excited, prone to make much of her ills, has all sorts of symptoms, such as pain, palpitation, dyspepsia and difficult breathing, and these are aggravated by mental excitement, while at other times the symptoms may so nearly vanish that the patient does not appear to be ill.

Second: This class of cases has more severe disturbance, coming on after some unfavorable mind influence. The patient may have displayed a general hysterical tendency previously or may have seemed perfectly well. In this class we may see all of the symptoms above described. There may be paralysis, spasm, numbness or oversensitiveness. One or more of these symptoms may persist for weeks or months; again they may vanish quickly and give place to other disturbances. Any aggravation of the symptoms is usually due to emotional excitement. This is particularly true of hysterical convulsions. In many cases each attack is due to anger, fright or some similar cause.

Third: The third class consists of the most severe forms of hysteria. They are as complicated as they are puzzling, and form all sorts of combinations with all of the hysterical symptoms.

The entire duration of the disease varies greatly. The true root of the evil is the excessive excitability of the nervous system, and often it is not possible to cure this. If not, the trouble lasts almost indefinitely. The disease comes on afresh after periods of apparently perfect health. Usually the symptoms do not cease until quite late in life. There are, however, many cases of complete and permanent cure.

Treatment—What has been said about the cause of hysteria at once suggests a possible method of preventing the disease. A watchful eye will often detect, even in childhood, the signs of abnormal nervous excitability, and in such a case parents will make it their duty to carefully look after the physical and mental training of the child and thus avoid the greater disturbances that may lead to hysteria. If hysteria be already present the first and

most important treatment is treatment of the mind. There could be no greater mistake than to ridicule the patient, for hysteria is a disease, and its symptoms are just as true as far as the patient is concerned as the symptoms of any other disease. It is important, however, to strengthen the will, and this can sometimes be best accomplished by removing the patient from friends and placing in a hospital. A good treatment for hysteria is the use of an electric battery, cold bathing and rubbing. Very often the sudden pain caused by the application of electricity will cause a patient to quickly move a paralyzed muscle. The milder varieties of hysterical convulsion, such as hiccough, are often controlled by stern reproof. The numbness is best treated with electricity. Medicines in hysteria do good just as long as the patient has faith in them. This explains the frequent cases of rapid recovery after taking "Electro-homeopathic" remedies, and those still more marvelous cures affected by "Faith cure," "Christian Science," "Magnetic Healers," "Osteopaths," etc. This point, of the influence of the mind over the functions of the body, was very nicely illustrated in a French hospital some little time ago. One morning the physician in charge of the hospital ordered a certain dose of medicine to be given to every patient in one of the hospital wards. The nurse in charge gave the medicine as directed and in a half hour the physician came into the ward in a very excited manner and in a loud voice asked the nurse if any of the patients had vomited. She replied that they had not and asked why he suspected such a thing. He replied that he had made a mistake and that the medicine which he had ordered given was a violent emetic. The nurse seemed much excited by this information, and in less than five minutes over half of the patients in the ward were vomiting. The medicine given was bismuth, and this, in place of producing vomiting, tends to settle the stomach. Other trials of a similar nature have been made, and we can thus see the very powerful influence which the mind has over the functions of the body. Should a patient be suffering from an actually diseased organ no mind influence can cure the trouble, but if the disease is one which relates to the function of some organ it may be cured by mind influence. The marvelous cures so often heard of are invariably among the class of cases in which the disease is functional; or in other words the disease

has no actual existence and is in the mind of the patient alone. In medicine this condition is always spoken of as hysteria. Osteopathy may do a certain amount of good, as in many cases the rubbing and pounding practiced by these people will afford a certain amount of stimulation to weakened members. Eclectic or electro-homeopathic treatments do actual good in but a very small number of cases. The persons who experiment upon the people by holding out "Faith Cure," "Magnetic Healing," and "Christian Science" as a cure-all for any and all diseases have undoubtedly brought many hysterical people to their senses, and their wonderful cures are all among this class, but they have yet to cure the first patient who was suffering from organic or actual disease of an organ of the body. Hence we may say that in hysteria, as a rule, treatment either produces a brilliant cure or it has no effect at all.

The drugs that produce the best results in hysteria are tincture of asafetida, one-half teaspoonful every three hours, and valerianate of ammonia, one teaspoonful every three hours.

Nervous Prostration—This is a debility of the nervous system, causing an inability or lessening the desire to perform or attend to the various duties or occupations of the individual. It may be caused by various chronic diseases, mental worry or strong emotion, overwork, nervous temperament, sexual excesses alcohol and tobacco.

Symptoms and Signs—This disease is a condition of nerve tire or nerve exhaustion, and hence the nervous energy necessary for any particular organ to perform its function is wanting. One of the earliest signs of nervous prostration is an irritable or weak mind, as shown in the inability to concentrate the thoughts, and when the patient attempts to do so, headache, dizziness, restlessness, fear, a feeling of weariness and depression, and a host of other symptoms are produced. There may be difficulty in seeing, the heart may palpitate, the hands and feet may be cold; there may be chilliness, followed by flashes of heat, and this in turn followed by slight sweating. Patients are unable to sleep, or if they do sleep the sleep is tiring and accompanied by unpleasant dreams.

Treatment—Rest is a first essential, and this is best accomplished by removing the patient some distance from home. Send him on a visit where his entire surroundings will be new and where the everyday things which he has been accustomed to all his life will not worry and annoy; he should have pleasant companionship and be relieved of all responsibility. Attend carefully to the diet and hygiene; give daily baths with plenty of rubbing. Give one tablet No. 17 three times a day before meals. Keep the bowels well open by the use of No. 16.

Acute Bright's Disease—This is an acute inflammation of a portion of the kidney. It is caused by cold and exposure, by scarlet fever, by the continued use of irritating medicines, such as turpentine and cantharides, and by blows and injuries to the back.

Symptoms and Signs—The disease usually begins suddenly with fever, nausea and persistent vomiting; dull pain in the back over the kidneys, frequent desire to urinate, some diarrhea; the skin is harsh and dry, the pulse quick, tense and full. Some dropsy appears; at first a puffiness is noticed under the eyes, then the entire eyelids and face become puffy and swollen; the ankles begin to swell, and this extends to the legs and the walls of the abdomen. If the attack follows scarlet fever there will be much greater paleness and weakness than if the disease is primary. The urine is heavy, scanty, smoky in color, and if a small portion of the urine be boiled and then a drop or two of nitric acid be added a sediment will be formed showing that albumen is present. The disease lasts from one to four weeks.

Treatment—Absolute rest in bed is necessary. The diet should be entirely fluid, milk, broths, oysters, etc. See chapter on Diet in Disease, p. 106. Allow the patient to drink an abundance of water, but no tea, coffee nor stimulants. Apply a mustard plaster over the kidneys. Give five tablets No. 9 and two tablets No. 4 each morning before breakfast. Give a hot bath each day and immediately after the bath place the patient in bed; cover him well and place hot water bottles and hot bricks or irons about him; allow him to sweat freely for a half hour, then give a warm sponge bath and transfer to a dry bed. As soon as the dark color disappears from the urine give one tablet No. 17 three

times a day after meals; continue this remedy for at least four weeks.

Chronic Bright's Disease—This is a chronic inflammation of the kidneys. It sometimes follows the acute form, or may be caused by syphilis, excessive use of alcohol, mercury or lead poisoning, and by some other conditions

Symptoms and Signs—The disease begins very slowly; sometimes the first thing noticed will be dropsy, which, beginning under the eyes and in the face, gradually extends over the whole body. In other cases the dropsy does not come on until later, but the patient becomes pale, loses strength, suffers from palpitation of the heart and difficult breathing, has frequent attacks of vomiting, headache and dizziness, and the eye-sight becomes more or less impaired. All these things occur without any apparent cause. The urine is scanty and highly colored, and if a little of it be boiled and a few drops of nitric acid be added a sediment will be noticed which indicates the presence of albumen. As the disease progresses the urine will increase to more than the normal amount and the bladder will be very irritable. The patient will be very pale and bloodless. Disturbances in digestion and neuralgic pains are common.

Treatment—It must be remembered that the course of a case of chronic Bright's disease is not continuously downward; periods will occur when the patient seems so much better that he and his friends are often led to believe that he will have an early and complete recovery, yet the symptoms may at any time grow worse and death occur quite suddenly. Two things are very important in the treatment of chronic Bright's disease—rest and diet. The patient should be relieved of all business cares and spend the greater portion of the time in bed. The diet should consist entirely of milk and no stimulants whatever should be used. Give one tablet No. 17 three times a day before meals. If dropsy is present use the hot bath treatment as recommended in acute Bright's disease. Recoveries from chronic Bright's disease are rare indeed, and death often occurs very suddenly.

Movable Kidney—This disease is a condition of the kidney in which the tissues about the organ are so loose as to permit the kidney to be moved about in certain directions, causing a mov-

able tumor in the abdomen. Very few if any symptoms accompany this trouble, and as no injurious results are to be feared the condition requires no treatment. If a tumor in the abdomen has been found to be a movable kidney no further anxiety need be felt.

Cystitis—Catarrh of the Bladder—This is an inflammation of the mucous membrane which lines the bladder and may be either acute or chronic. The acute variety may be caused by too long a retention of urine, by foreign bodies in the bladder, by inflammation of the urinary passage, by blows over the bladder, and it may follow diphtheria or fevers. The chronic variety follows the acute variety or is caused by stone in the bladder, stricture or chronic Bright's disease.

Symptoms and Signs—The acute variety begins suddenly with slight fever, loss of appetite, sleeplessness, a feeling of depression frequent desire to pass water, but only a few drops at a time are passed, and immediately afterwards a severe pain is felt in the bladder; pain is often felt in this region and is usually dull, but at times becomes sharp and piercing; the urine is cloudy and often has a strong odor. Litmus paper placed in the urine will remain blue.

The chronic variety begins slowly and is usually caused by stone in the bladder or some other obstruction to the free passage of the urine. Dull pain is present; the urine is passed often and but little at a time, and on standing for some time the urine leaves a considerable sediment. Patients with this disease usually lose a considerable amount of strength.

Treatment—Rest must be insisted upon. The diet should consist as nearly as possible of milk, and all highly seasoned foods are forbidden. Place hot cloths over the bladder or a very light mustard plaster may be used. Control the pain by the use of No 25. Give one-half teaspoonful of sweet spirits of nitre every four hours. Have this well diluted with water.

Inflammatory Rheumatism—Acute Articular Rheumatism—This is a constitutional disease in which there is fever, and inflammation occurs about and in the joints.

Symptoms and Signs—The disease begins suddenly, generally at night, with a chill or chilliness, pain and stiffness in the joints,

loss of appetite, and fever, which soon rises to 102° or 104° , the pulse beats about 80 or 90 beats per minute; there is great thirst, profuse sweat, scanty, highly colored urine; the bowels are constipated. Sleep is prevented by the pain and the profuse sweating. There is pain, tenderness, increased heat, swelling and redness of one or more joints. The pain is made worse by motion or pressure. The inflammation may suddenly cease in one joint and as suddenly attack another. Inflammatory rheumatism sometimes affects the heart, and when this occurs the case becomes a serious one indeed, and skilled advice should be sought.

Treatment—The patient should be kept warm at all times, wear woolen clothing and be covered in bed with blankets. Hot dry cloths may be placed on the swollen joints. The diet should be of easily digested foods, such as are recommended in the chapter on Diet in Disease, p. 106. Give one tablet No. 36 every three hours. Give one tablet No. 37 at night and one in the morning. As the patient grows better give one tablet No. 33 three times a day after meals.

Muscular Rheumatism—This is an inflammatory affection of the voluntary muscles. It is a disease of adult life and is due to exposure to cold and damp.

Symptoms and Signs—The disease begins somewhat suddenly with pain and tenderness in the affected muscles. Considerable stiffness and difficulty in movement are also experienced and any movement increases the pain. The pain may be very severe and constant or it may only be felt when the muscle is moved. Sometimes an affected muscle will cramp. The pain may be severe enough to prevent sleep. The general symptoms of muscular rheumatism are so well known that a longer description will be unnecessary.

Treatment—Rest the affected part; wear flannel next to the skin; use dry hot cloths over the affected parts. A light mustard plaster is often of service. Keep the bowels well open; avoid exposure of any sort; give one tablet No. 37 every four hours and one tablet No. 36 before each meal. Hot dry air baths or medical vapor baths do much good in all cases of muscular rheumatism. A very convenient mode of giving such treatment is by the use of a bath cabinet, and the description of such an appliance will be found in the Appendix.

If the instructions here given are carefully carried out a majority of the cases of chronic rheumatism will be cured.

Scurvy—This is a peculiar lack of nutrition which occurs when a sufficient supply of fresh vegetables are not included in the diet.

Symptoms and Signs—General weakness and a decided indisposition to either mental or physical exertion is one of the symptoms. The skin is dry, rough and muddy in color; the face is pale and bloated. The gums swell and become spongy and bleed very easily; the teeth become loose; the lips are pale; the breath is very offensive; the eyes are sunken and surrounded by dark circles; bleeding may occur from the stomach, mouth or intestinal canal, and the face and ankles may swell. The spirits are much depressed; the heart palpitates on slight exertion; the urine is highly colored, and the patient usually longs for vegetables and fruits.

Treatment—Give the juice of lemons, oranges and other fruits. After a short time give raw cabbage and raw potatoes along with bread and milk. Give one tablet No. 33 after each meal. No other treatment will be needed.

Diabetes Mellitus—This is a chronic disease in which sugar is found in the urine; there is an excessive amount of urine passed and the patient gradually loses flesh and strength.

Symptoms and Signs—The urine is passed more often and there is a greater amount than normal—sometimes as high as twenty or thirty pints will be passed in twenty-four hours; it is pale, clear and watery and has a sweetish odor. Should these things be present take a sample of the urine to a physician and have him test it for sugar. This test is somewhat complicated and therefore it will not be given here. A simple test is given on p. 140 but is not an accurate test. There is pain over the kidneys. The passage of this increased amount of urine which contains sugar will cause itching and burning of the external parts. A very constant symptom in this disease is thirst with a dry and parched condition of the mouth; the appetite is uncertain. The bowels are constipated and the stools pale and dry. The patient complains of feeling very weak and languid and of sore-

ness and pain in the limbs. There is more or less loss of flesh; the skin is harsh and dry and the face has a worn expression. The spirits are depressed and the patient is usually very irritable. Death is the end in the majority of these cases and the younger the patient the more rapid the fatal termination.

Treatment—The importance of a strictly regulated diet cannot be too firmly impressed upon the mind of the patient. The patient should eat no food whatever that contains starch or sugar. He should not eat bread or flour, honey, potatoes, peas, beans, rice, breakfast foods, oatmeal, turnips, beets, corn, carrots, prunes, grapes, and in fact all fruits should be avoided. No liquor of any sort should be allowed. The diet should consist of meat, poultry, game, fish and milk; the milk should only be allowed in moderate quantity. Small amounts of tea, coffee and cocoa, without sugar, may also be allowed. The patient should wear flannel and have two or three warm baths a week and one good sweat in bed surrounded by hot water bottles each week. Give one tablet No. 25 every three hours. Give one tablet No. 33 three times a day after meals. A change for the better is many times produced by a change of climate. The treatment of this disease, however, is unsatisfactory at best.

Diabetes Insipidus—This is a disease in which a large quantity of pale, watery urine is discharged. It does not contain either albumen or sugar.

Symptoms and Signs—There is great thirst, with an increased flow of pale, watery urine, the amount varying from five to six gallons in twenty-four hours. Sugar and albumen are absent. The appetite is good, the bowels are constipated and the skin is dry and harsh. There is nervousness, irritability, failure of memory, headache, vivid imagination and inability to concentrate the mind. Unless the affection is soon arrested great loss of flesh and strength results.

Treatment—Give one tablet No. 16 at night and one in the morning before breakfast. Give one tablet No. 33 after each meal.

Obesity—The amount of adipose tissue in the body is subject to considerable variation, and it is not possible to state absolutely

what should be considered as normal and what as abnormal. For practical purposes, however, we may draw the line where the increased size grows burdensome to the individual. After a certain point any further addition to the amount of fatty tissue is almost sure to work serious injury, and is therefore to be regarded as an actual disease, and not merely an inconvenience. The most frequent and important cause of obesity is the habitual use of too large an amount of food. The constant use of alcoholic liquors tends to produce fat. Fat may be produced by a lack of sufficient exercise. The effects of obesity are first noticed in the breathing and in the circulation; the patient complains of shortness of breath and there may be some disturbance of the heart or the circulation, such as rapid pulse, palpitation, etc.; the appetite and digestion are somewhat disturbed and there is a tendency to bronchitis and other catarrhal troubles.

Treatment—To reduce fat two points must be borne in mind: first, lessen the amount of fat taken into the body; second, destroy or reduce that already present. The first is accomplished by means of diet. The patient should live upon lean meat, fish, fresh vegetables, fruits, tea, coffee and water; a very small amount of bread may be allowed, and rice, eggs and oysters may be used in moderation. No potatoes should be eaten, and aside from the articles mentioned no other food should be used. The patient should take frequent baths, plenty of exercise and obey the rules of hygiene.

The second point, the reduction of the fat already in the body, requires a long course of treatment and special remedies are required. It is impossible to place a sufficient amount of such remedies in the Home Remedy Cabinet, but in the Appendix will be found an article that will be of interest to those who desire to take treatment for the reduction of obesity.

Scrofula—A brief description of scrofula from a practical standpoint is here presented. From a scientific point of view scrofula is not to be regarded as any special variety of disease. The term is applied to a group of symptoms seen most frequently in childhood, the essential points of which consist in the appearance of chronic enlargements of the lymph glands, and in certain diseases of the skin and mucous membranes. Most scrofulous

children appear pale and have a flabby skin and soft muscles. The enlarged lymph glands will be felt in the throat under the chin. Chronic skin troubles are seen on various parts of the body. The most common of these is a scaly eczema which affects the face, scalp or extremities. Catarrh of the nose, ulcers on the eyes and discharge from the ears are some of the manifestations of the disease in mucous membranes. Many times the bones and joints are diseased.

Treatment—The local signs of the disease, such as eczema, discharging ears, etc., must first be treated, and then the general health of the patient built up. Cases of scrofula are best handled by physicians, as the treatment varies greatly and requires close watching.

DIFFERENCES NOTICED IN DISEASES.

Between Asiatic and Simple Cholera—*Asiatic*—1. A painless diarrhea is noticed at the beginning.

2. Is not caused directly from an error in diet.
3. First pain is severe and shooting down thighs.
4. Prostration is overwhelming and more rapid than would be expected from the number of evacuations.
5. The skin is cool, but the thermometer placed in any of the cavities shows much fever.
6. The evacuations are like rice water from the very start of the disease.
7. Cramps commence in the extremities.
8. The veins are congested; the tongue, lips and extremities are a livid purple.

9. The urine contains albumen.

Simple—1. Begins very suddenly.

2. Is generally caused by an error in diet.
3. The first pain is colic in the abdomen.
4. Prostration is gradual and less than might be expected from the amount of vomiting and purging present.
5. The skin is cool; a thermometer placed in any of the cavities shows a normal temperature.
6. The stools are bilious and cause burning and smarting pain.

7. Cramps commence in the abdomen.
8. The veins are not congested and the tongue, lips and extremities are of normal color.
9. There is no albumen in the urine.

Between Croup and Diphtheria—*Croup*—1. Starts without illness with a hoarse, metallic cough.

2. Is a disease of childhood.
3. The tonsils and the mucous membrane of the throat are covered with mucus.
4. Croup is a local disease.

Diphtheria—1. The disease is ushered in by illness, chills, fever and sore throat without a cough.

2. Is a disease of adults as well as children.
3. The tonsils are covered with a tough whitish membrane which does not come off easily.
4. Diphtheria is a general disease and is a blood poison.

Between Epilepsy and Hysteria — *Epilepsy*—1. The patient loses consciousness suddenly and completely.

2. The face is livid, frothy saliva runs from the mouth, the eyelids are half open, the eyeballs roll about, the teeth grind, the patient is liable to bite the tongue, and the pupil of the eye does not expand and contract readily under the influence of light.

3. The features are distorted.
4. The patient shows no feeling whatever.
5. The paroxysm is short and liable to be followed by heavy comatose sleep and dull intellect.
6. Attacks frequently occur at night.
7. Not caused by uterine trouble, although a paroxysm may occur during the menstrual period.

Hysteria—1. If the patient loses consciousness it is very gradual, and usually consciousness is only partially lost.

2. The face is flushed or the complexion unaltered, no froth runs from the mouth, the eyelids are closed, the eyeballs are fixed, there is no grinding of the teeth, nor will the patient bite the tongue severely enough to produce bleeding, the pupil of the eye expands and contracts readily under the influence of light.

3. The features are not distorted.
4. The patient sighs, laughs or sobs.

5. The paroxysm is longer and followed by wakefulness and depression in spirits.
6. Attacks very rarely occur at night.
7. Very often caused by uterine or menstrual disorders.

Between Pleurisy and Pneumonia—*Pleurisy*—1. The pain is sharp, a rubbing, rasping sound is heard, the cough is dry, the movement of the chest is impaired.

2. In second stage the spaces between the ribs are obliterated.
3. Sputa is frothy.
4. Patient is usually not very sick.
5. The temperature is irregular, rarely high.

Pneumonia—1. The pain is dull, a crackling sound is heard, the cough is moist and followed by expectoration, the movement of the chest is not impaired.

2. In second stage the spaces between the ribs are visible.
3. The sputa is rust-colored.
4. The patient is very sick.
5. The temperature rises and falls suddenly and high temperature is the rule.

Between Scarlet Fever, Measles, and Smallpox—*Scarlet Fever*—1. Time from exposure until patient is taken sick is from one day to many weeks.

2. Some fever, the skin is very hot, the pulse is frequent and continues during the eruption.
3. The eruption appears on the second day and is not rough; it appears first on the neck and chest and spreads rapidly; pressure on the skin with finger nail will give a white streak which remains for some time.
4. The rash is uniform or in large patches, scarlet in color and about the seventh day desquamation begins and is very complete and in large patches.
5. The throat is sore.
6. The tongue is red and from its appearance is often spoken of as "raspberry tongue."
7. Symptoms of serious brain trouble are common.
8. The fever may be as high as 105° from the first to the tenth day and falls gradually.
9. No secondary fever.

10. Pneumonia is a rare complication and pleurisy is a common one.

11. The disease may be followed by Bright's disease, dropsy, deafness, inflammation of the eyes, chronic diarrhea and enlargements of the glands.

Measles—1. Time from exposure until patient is taken sick is from seven to fourteen days.

2. Same fever as in scarlet fever with the exception that it is rather increased when the eruption appears.

3. The eruption appears on the fourth day and is rough; it appears first on the face and spreads slowly; no white streak on pressure on skin with finger nail.

4. The rash usually occurs in crescent shaped patches and lasts about five days and then desquamation begins with very fine scales.

5. The throat is rarely sore, but the nose runs and bronchitis is constant.

6. The tongue is coated and may be red at the edges.

7. No brain symptoms occur.

8. The fever is from 103° to 106° before eruption and remains high for one day after the eruption appears and then suddenly falls.

9. There is no secondary fever.

10. Pneumonia is a frequent complication.

11. May be followed by chronic bronchitis, inflammation of the eyes and whooping cough.

Smallpox—1. Time from exposure until patient is taken sick is from six to twenty days. The average is ten days.

2. The fever is violent, the pulse bounding, there is pain in the loins and these symptoms improve much with the appearance of the eruption.

3. The eruption appears on the third day, at first on the lips and forehead, and spreads rapidly.

4. The eruption is a tiny pimple at first, then fluid forms in the pimple, and finally on the eighth day of the eruption pus forms in the pimples.

5. The throat is often sore, the cough dry.

6. The tongue is coated and swollen and red at the edges.

7. Symptoms of brain trouble are frequent.
8. The fever may be as high as 106° before the eruption, when the eruption appears the temperature falls to about 100° and rises again later.
9. Secondary fever is always present.
10. This disease is usually uncomplicated.
11. May be followed by chronic diarrhea, various eye diseases and enlarged glands.

CHILDREN AND THEIR DISEASES.

GENERAL CARE OF INFANTS AND CHILDREN.

The physical development of the child is the product of three factors: inheritance, surroundings and food. Over the first we have no control, but the matter of surroundings and food are entirely within our control, and the consideration of surroundings and feeding are of the utmost importance to infant life.

Care of the Newly Born Child—After the cord has been tied, the babe should be wrapped in a blanket and placed in a warm room. The eyes should then be carefully washed with a solution made by dissolving two tablets of No. 1 in a cup of warm water, using small pieces of absorbent cotton and allowing the solution to drop slowly from the wet cotton upon the eye between the separated eyelids. Next oil the child's body with sweet oil, or fresh sweet cream, then wash and dress. Dress the cord by covering thoroughly with starch or boric acid and keep dry and undisturbed until it falls off. The cord usually falls off about the fifth day and the stump should be dressed with the same dry dressing used for the cord and, in addition, a pad of muslin about two inches square and one-fourth inch thick placed over the stump and held there by a bandage passed snugly around the child's body.

Food—The question of food for the newly born infant will be found in the chapter on Infant Feeding.

Bathing—For the first few months the child should be bathed every day in water at a temperature of 98°. Never bathe a baby in a cold room. The bath should be short and the little body carefully and quickly dried. The addition of a handful of salt in two gallons of water in the bath is often a benefit. After six months the temperature should be reduced to 95°, and by the end of the first year to 90°. Children over two years of age should be bathed in water at a temperature of 70°.

Clothing—The clothing of children should be light, warm, non-irritating to the skin, and loose enough to allow free motion of the extremities. The chest should be covered with a woolen shirt, high in the neck and long sleeved. All petticoats should be supported from the shoulders and not worn from the waistbands. Canton flannel is probably the best material for diapers. Care must be taken to have the infant's feet warm at all times. Cold feet are responsible for many attacks of colic and indigestion. The night clothing of infants should be similar to that worn in the daytime, but more loose. Do not overload the babe with clothing at night, as much of the restless sleep seen in infants is due to this cause.

Care of the Eyes and Mouth—During the first few days, at the time of the bath, the eyes should be cleansed and the mouth carefully washed out with a solution made by dissolving two tablets of No. 1 in one-half cup of warm water. Cleanse the eyes in the manner described on p. 210. Carefully protect the eyes of a young child from too strong a light. Should the babe's mouth become quite red and inflamed, wash very carefully after each feeding with a solution made by dissolving two tablets of No. 2 in one-half cup of warm water. Harm is often done by using too much force in cleansing the mouth of a young infant, so it should be done very gently. The first teeth, as well as those of the second set, should be cared for every day. Dirty teeth are likely sooner or later to decay, and beside causing a foul breath and much "toothache," are liable to produce troublesome diseases. Much suffering and many of the large dentist bills might be prevented by daily care of the teeth from early childhood. Hollow teeth should always be either filled or removed.

Care of the Skin—The skin of a young child is very delicate, and sore spots, itching and eczema frequently occur, which are much easier prevented than cured. Cleanliness is, of course, essential, and this must be brought about without the aid of strong soaps or violent rubbing. Diapers should be removed as soon as soiled or wet. It is recommended that all folds of skin, under the arms and about the buttocks and genital organs, be lightly dusted with talcum powder, which will prevent any irritation.

Vaccination—As a matter of safety all children should be vaccinated before they reach the age of two years. This should be done by a competent physician.

Training to proper Control of Bowels and Bladder—A little intelligent effort in this direction will bring about surprising results. An infant can often be trained at three months of age to have its movements from the bowels when placed upon a small chamber. This not only saves a great deal of washing of diapers, but establishes the habit of having movements from the bowels at regular intervals. Soon after feeding, the infant should be placed upon the chamber. The value of regular habits in this direction can hardly be overestimated. The same training may be applied to the bladder, and although it is not of so great importance, adds very much to the comfort of the child. Night feeding is responsible for much of the difficulty in training children in these two respects.

General Care of the Nervous System—Children may be greatly injured by the influences by which they are surrounded during the first year of life. The child's brain grows more during the first two years than during all the rest of life, and it is therefore important that we surround the babe with those influences which will tend to the very best development during this time. The healthful development requires quiet, rest, peaceful surroundings and freedom from undue excitement. Most parents err through ignorance. Playing with young children until they shriek with apparent delight may amuse fond parents but is almost sure to work a greater or less injury to the child. Such romping should never take place in the first two years of a child's life, and in later years never in the evening, as it is especially harmful to a child about to retire.

Sleep—For two or three days after birth, the new-born babe will sleep profoundly and almost continuously. The sleep of infancy is quiet and peaceful, but infants usually do not sleep soundly after the first month. After the third year the heavy sleep of childhood commences. A healthy infant sleeps about twenty hours out of twenty-four, a child at the age of one year from fourteen to fifteen hours, and gradually a less time until the sleep of the adult is reached. Training in the proper habits of

sleep should begin early. The infant should be placed in the crib awake and allowed to go to sleep of its own accord. An infant should not be allowed to go to sleep on the breast of the nurse or with the nipple of the bottle in its mouth, as it will soon acquire the habit of not sleeping without them. A quiet darkened room, a warm, comfortable bed, a satisfied appetite and dry diapers are all that are needed to induce sleep in a healthy child. Regular habits of feeding and sleeping go hand in hand and are easily formed if care is taken. By the fifth month all feeding between 10 o'clock p. m. and 7 o'clock a. m. should be discontinued. If this is done most infants can be trained at this time to sleep all night. Regular feeding and sleep not only make the babe much easier to care for, but they are also of much importance to the health of the child. There are two main causes for disturbed and irregular sleep in infants—hunger and indigestion. In nursing infants it is usually hunger; in those artificially fed, usually indigestion. All small children, until the age of 3 years should have a nap during the day, and all children should have a regular and early bedtime hour. Children should also not be allowed to eat rich or heavy foods at night, as this not only produces sleeplessness and nightmare, but also is much of the cause of more serious sickness.

Exercise—Exercise is fully as important in infancy as in later child life. The infant gets its exercise by kicking its legs about, waving its arms, etc., and it is a good idea to allow the babe to lie in partial dress in a warm place for a little time immediately following the bath. An infant's clothing should be such as will not interfere with its exercise. Confinement of the legs should not be permitted. As the child grows old enough to creep and walk it should be allowed every facility for using its muscles. Up to the eleventh year no difference need be made in the exercise of the two sexes. There are two important points in regard to indoor exercise; first, the playroom should be cool, never above 65°; and second, the clothing should be loose and light, so as to allow a perfectly free motion to the body.

Air—After the first week an infant cannot be out of doors too much in the day time, provided the weather is fair. The baby's first outing should not be longer than fifteen or twenty minutes,

and after that the time may be gradually increased to two or three hours. The head should be protected from the wind and the eyes from the sun. It is well to let the child sleep out of doors in a baby carriage on pleasant days. And above all the house should be well aired at all times.

Dentition or Teething—At birth the teeth are enclosed in dental sacs which are situated in the gums. The tooth begins to grow at birth and steadily continues until it pierces the gums. The first or milk teeth are twenty in number, and they appear in the following order: Two lower middle or incisor teeth, six to nine months; four upper middle or incisor teeth, eight to twelve months; two lower teeth beside those already through, and four grinders or molars, twelve to twenty-four months; four back grinders or molars, twenty-four to thirty months. A child one year old should have six teeth; a child one year and one-half old, twelve teeth; one two years old, sixteen teeth; one two and one-half years old, twenty teeth. From this there may occur a wide variation for which there seems to be no explanation, but the teeth usually appear according to this rule. About the seventh month it will be noticed that the child becomes occasionally fretful; it is restless and easily irritated; it will suddenly seize the nipple and as suddenly reject it, with evidences of pain; it will refuse at times the bottle, and then cry from hunger at sight of it; its sleep will be disturbed; it will suddenly cry out in sleep; in fact it will show a marked degree of irritation which it had never shown before. The gums will be found, upon examination, to be red and angry, and the child, after seizing upon the fingers and finding the pressure painful, will refuse to allow its mouth examined. The secretion from the mouth will necessitate frequent changing of the bib. In a few days the tooth will appear. The bowels should be kept well open during teething. When a child is cutting teeth and has become irritable and sleepless and you have tried everything with patience and still have failed to give relief, and when you have daily taken it out into the fresh air and kept everything bright and cheerful during the day and still have failed to get the child to sleep; when you have given a warm bath at night, rubbed the child well and still it will not sleep, then you may give one tablet No. 7, and if the child does not go to sleep in an hour

the dose may be repeated. If the child is very restless a half teaspoonful of camphor water may be added to the above. Never give paregoric to a teething baby. Convulsions sometimes occur in a teething baby, and for directions as to the treatment of these see the chapter on Convulsions. After the teeth are through it is time to begin to change the food of the child, and this must be done very carefully at first. The best thing to start a child on is the wing bone of a chicken which has been well boiled; it will amuse the child and at the same time give the stomach a small amount of a very different food from milk. This may be followed by small quantities of soft-boiled egg, soft milk toast, well roasted potato, beef juice gravy and well boiled rice. Do not allow the baby to have a taste of everything he may fancy, but use careful judgment and consider effects before you give the food. The child raised upon simple food thrives the best. The subject of difficult teething is taken up fully in the chapter on Diseases of the Mouth.

PECULIARITIES OF DISEASE IN CHILDREN.

Diseases in children differ in many respects from those in later life and these differences relate to the cause, symptoms, diagnosis or naming of the disease, and prognosis or prediction of the course and end of the disease.

Cause—Inheritance is a prominent factor, the disease most frequently transmitted being the dreadful disease, syphilis. However, other infectious diseases are frequently transmitted from mother to child. In cases where no direct disease is transmitted, children may inherit a tendency to disease which may manifest itself in infancy or may not appear until later childhood. Under this head we may place the influence of rheumatism, gout, nervous diseases, tendency to use strong drink and, possibly, insanity. In consequence of these diseases in parents, the children may not inherit the disease but only a weak constitution. Imperfectly formed heart, brain or kidneys may be important causes from a medical standpoint. Other deformities belong to the practice of surgery and we need not consider them here. The conditions which interfere with the proper growth and develop-

ment of the child are improper feeding, unhygienic surroundings and neglect. These may cause such diseases as rickets and scurvy or may lead to a condition of general malnutrition which in turn may, in later life, lead to the distressing acute diseases of the stomach and bowels.

Symptoms and Diagnosis or Naming the Disease—

In children over twelve years of age we find the symptoms of disease very much the same as in adults, and similar methods of examination may be employed. What is really peculiar to children belongs especially to the first three years of life, before speech has developed. During this period we must rely entirely upon signs of the disease which we can see. It is not so much that diseases of early life are peculiar as that the little patients cannot tell us any of the things that older ones do. Two facts must always be kept in mind: first, that the diseases common to early childhood are few, being chiefly located in the digestive apparatus, the lungs or the brain; second, that in infants we may have very grave symptoms which may prove fatal in twelve to twenty-four hours, or there may be speedy and complete recovery after very alarming symptoms. In determining the disease, if there is an epidemic in the country it may help you; and a careful look for indigestion, colic, lung fever and croup will be an aid. In examining the little one first think over the whole sickness, from the first thing noticed down to the present time; ask everyone who has had anything to do with the baby what he has noticed: "When was the baby first taken sick? What was the first thing you noticed? Did it have fever? (This may be certainly known by the use of the thermometer found in the Cabinet.) Has it taken its food properly and the usual amount? Is it hoarse or has it a cough? Does it show any evidences of pain, such as restlessness or screaming? Does it sleep in its usual manner? Are the bowels regular and is the stool of good character? Does it pass water more often than usual, and is the amount of water more or less than usual? Has the child been exposed to any contagious disease, such as smallpox or scarlet fever?" Having thought of all these things, we must now look at the baby. If the child is asleep or quiet note the following points:

1. Whether the child lies upon the back, the side or the face.

2. If asleep, whether it is quiet and peaceful or restless and disturbed; whether there is constant tossing about; whether the hands are quiet or tossing about the head; whether the jaws are set together and the teeth grind, etc.

3. Whether the child's breathing is regular or irregular. Whether the breathing is rapid or slow, easy and natural or whether there is obstruction in the nose, with snoring and breathing through the mouth. These latter indicate enlarged tonsils and growths in the back of the nose, and the child should be taken to a nose and throat specialist at once.

4. Whether the pulse is rapid or slow, full and strong, or soft and easily compressed. A slow, irregular pulse in a young child should always make one think of meningitis or brain fever. The same pulse when rapid means nothing in particular.

5. Whether the skin is dry and hot or covered with perspiration. Is the child excessively pale or blue or is there blueness of the lips and finger nails? Are the hands and feet warm or are they cold and clammy?

6. Whether the expression on the face is peaceful, or drawn and anxious, intelligent or stupid, and are the features contracted from time to time as if from pain?

7. Is there a cough? Is it frequent? Is it difficult or severe?

8. Does the child cry from pain or discomfort, or hunger, or temper or from habit? In very many cases the cry is so characteristic that one who is familiar with the child's language can readily tell what is wrong. It is something which should never be disregarded. The cry of hunger is apt to be interrupted by vigorous sucking of the fingers, and ceases immediately when the hunger has been satisfied. The cry of indigestion is often mistaken for that of hunger, but in such a case although the cry may cease for a few minutes after taking food it is likely to soon return with the same vigor. Under such circumstances a frequent repetition of nursing should never be allowed. The cry of pain will depend somewhat upon the severity of the pain. When it is caused by colic or earache it may be sharp and piercing, with drawing up of the legs and other signs of distress. The child falls asleep only when exhausted, and frequently wakes up with a scream. In less severe pain there is usually moaning, but rarely a sharp scream. Infants cry from any sort of discomfort

as well as from pain. The cry of weakness and exhaustion is a low feeble whine or moan which is almost constant and is easily recognized. The cry of temper is loud, violent and often prolonged. The cry of habit is one of the most difficult to recognize. The crying habit is formed by humoring babies in various ways. Some babies cry to be rocked, some to be carried, etc., and this crying habit explains much of the crying of early childhood.

9. The mental condition should be noted; it may be one of undue excitement or, what is more alarming, one of dullness and general relaxation. This latter indicates either extreme prostration or brain disease. Soreness of the legs only indicates scurvy, rheumatism or joint disease.

10. The glands of the neck should be noted. When swollen they may indicate scarlet fever, diphtheria or a simple active inflammation.

11. Look carefully after the discharge from the nose. If very active it may indicate diphtheria, scarlet fever or la grippe.

12. Note whether the child's mouth is dry and whether there is any form of sores in or about the mouth.

Very much can be learned by simply watching a sick child very carefully for a few minutes and remembering the foregoing points.

The Physical Examination—The first step should be to find out whether there is fever, and this is done by inserting the fever thermometer under the tongue or in the rectum—the latter is preferable, as it gives the best results. Insert the thermometer in the rectum and allow it to remain from three to five minutes. Before using the thermometer see the paragraph of instruction on p. 98. The normal child's temperature is from 98° to 99.5°. We may, however, find a very high temperature in a well child. In such cases the temperature usually falls in a few hours. To make a careful examination of the child the clothing, with the exception of the diaper, should be removed and the child laid on a blanket. Inspect the skin for eruptions and carefully examine the entire body. Note whether the child is well nourished. Examine the hearing and sight of the child.

Prognosis or Prediction of the Course and end of the Disease—The younger the child the less are its chances to get well in all the diseases of childhood, and it is also true that a child may entirely outgrow a serious chronic ailment. Lung fever is very common to younger childhood, and is very frequently a cause of death. This subject, however, will be taken up later on, and the prognosis of each disease will be given under its own heading.

Prophylaxis or Prevention of Disease—There is no more promising field in medicine than the prevention of disease in childhood. Instruction along this line and care in following the rules laid down in this book will prevent much sickness and remove the cause of much worry. It is in the power of man to prevent in a great measure the majority of ailments from which children die. In preventing disease we should look carefully at two things; the removal of the causes which interfere with the proper growth and development of children and the prevention of infection. If proper care is paid to these two points we can feel almost certain that the baby will pass through young childhood and emerge into mature age with the robust health all so much desire.

Administration of Remedies—Never give a dose of medicine unless it is needed and never hesitate to give a dose of medicine when it is needed. Never give a nauseous dose when one that is palatable will answer equally well. In the great majority of acute ailments not acute in character the patient recovers quite as well without a doctor as with one. This does not mean that treatment is not needed, but that the least important part of the treatment is drug giving, while the most important part is attention to hygienic matters. In young infants it is essential to avoid all unnecessary medication in order that the stomach may not be disturbed and vomiting started. It is one of the objects of the Home Remedy Cabinet to meet this very point. The medicines are put up in the smallest possible space, and being made from the perfectly dried powders they are entirely non-irritating to the stomach, with the exception of such as are intended to produce vomiting. As a rule infants revolt against taking large doses of highly seasoned syrups and elixirs, but it is indeed seldom that

we find a child who objects to a nicely coated tablet. And in all cases give nature a chance and she will prove to be a thorough physician.

Fever—If the fever is quite high, the head hot, the child restless and very nervous, an ice cap on the head or cloths wrung out of ice water and placed on the head and changed often will reduce the fever from one to two degrees and will quiet the child. With the same fever a sponge bath with water at 80° to 85° or with equal parts of water and alcohol or with equal parts of water and vinegar may be used with good results.

In cases which are very serious the ice pack may be employed. Strip the child and lay it upon a blanket, then cover all over excepting the face with a sheet wrung out of water at a temperature of 100°. Upon the outside of this ice may now be rubbed over the entire body, first in front and then behind. By this method there is no shock and no fright and any ordinary temperature can usually be readily reduced. The rubbing with ice should be repeated in from five to thirty minutes. After the rubbing roll the child up in the blanket upon which it is lying, but do not remove the wet sheet. The head should be sponged with cold water and it may be necessary to place a hot water bottle at the feet. The pack is to be continued from one to twenty-four hours, according to circumstances. This treatment had best not be used except under the direction of a physician.

The cold bath is frequently employed in the case of infants. The child is put into the bath at a temperature of 100° and the temperature is then gradually lowered by the addition of ice or cold water to 85° or 80°. The child should be thoroughly rubbed while in the bath and water should be applied to the head. On removal from the bath the body should be quickly dried and rolled in a warm blanket. The bath should last from five to twenty minutes.

Sometimes the temperature is reduced by injecting water into the rectum; this, however, should never be done unless under the immediate direction of the family physician.

Antipyretics, or Drugs Used to Reduce Fever—Quinine should never be used to reduce fever in children except in cases of malarial fever. Three drugs which are of value are

acetanilide, antipyrine and antifebrine. These drugs are all coal tar products and are very sure in their action and of much value. They are also very powerful in their action and should never be used except under skilled advice. Other drugs are used in this connection, and are referred to in their proper places.

Stimulants—Alcoholic stimulants are well tolerated even in very young infants, in spite of many statements to the contrary. Still the use of stimulants, and alcohol in particular, is no doubt very often abused. The indications for the use of stimulants in children are much the same as in adults. They are to be used whenever the pulse is weak, soft and compressible, and whenever there is great debility or weakness on the part of the patient. In most fevers stimulants are not to be given at all. For the first twenty-four hours after the crisis or breaking of the fever, it is frequently necessary to give stimulants very freely. In all poisonous diseases, such as diphtheria, stimulants should be given as soon as any depressing symptoms are noticed and continued through the course of the disease. In acute diseases of the digestive apparatus where food cannot be given it is frequently necessary to keep up the strength of the patient by the use of stimulants. The method of administering stimulants is of no little importance. When you find high fever, dry skin, flushed face and a full strong pulse, do not use stimulants. Brandy and whiskey are usually to be preferred to wines. However, when other stimulants are not well borne by the stomach champagne will be found invaluable.

For infants under one year of age stimulants of all sorts should be diluted with ten parts of water. Do not give too strong a stimulant to a baby—it is better to give the diluted form and give the dose oftener. If this plan is followed vomiting will be rarely produced. The quantity of course depends largely upon circumstances, but for a general rule give an infant one year old from half an ounce to an ounce and a half of whiskey or brandy in twenty-four hours. It is rarely if ever advisable to give more than this. Double the amount for children four years of age and over.

Tonics—Cod liver oil is probably the best tonic for young children, but it must never be given when the digestion is poor,

the tongue coated, or the stomach easily upset. Cod liver oil should always be given in small doses, say ten to twenty drops three times a day, and the pure oil is better for small children than any of the emulsions. Iron may be used, but it should never be used except under the personal direction of the family physician. For a general tonic for young children, No. 17 will meet all the requirements, and has been found to give most excellent results.

Counter-Irritants—Counter-irritants are of great value in a large variety of diseases. Blisters should never be employed on young children and only on older children by the direction of the family physician. A mustard plaster is one of the best means of producing quick counter-irritation over a large surface. To make a mustard plaster, take one part of powdered mustard, six parts of wheat flour and the whites of one or two eggs; mix to a thick paste with lukewarm water and spread between two layers of muslin. Allow this to remain on the child from five to eight minutes, when a thorough redness of the skin will be produced. This may be repeated every three or four hours and continued for four or five days without any injury to the skin. When using the mustard plaster for lung diseases it should reach entirely around the child's body. Next in value to the mustard plaster comes the turpentine stupe, and this is made by wringing a piece of flannel out of water as hot as can be borne by the hand; then sprinkle a few drops of turpentine over the flannel; place on the child's body and cover with a dry piece of flannel. This is very useful in pain in or about the child's abdomen. Do not allow the stupe to remain on long at a time or small and painful blisters will be formed. In lung fever turpentine is very useful, and to prepare for this use, melt some lard, then mix one part of turpentine to four parts of lard and rub the child's chest thoroughly both front and back with the mixture while it is warm; cover with thick dry flannel and be careful not to allow the air to strike the bare skin after the first application is made. Another very nice and pleasing counter-irritant is camphorated oil. This is made by adding one part of spirits of camphor to four parts of olive oil. Camphorated oil is mild in its action and gives very excellent results in many cases, and rarely does one find a child who objects to being rubbed with it.

Poultices—Very much good may be done by the use of poultices, yet nothing requires more care, and in using them three things must be remembered: first, the poultice must be carefully and correctly made; second, it must not be too heavy; and third and most important, the air must never strike the bare skin while changing the poultice. This is accomplished by drawing the fresh poultice up under the one to be removed and then lifting off the cold poultice.

Poultices are most useful in children in diseases of the lungs. Many little lives have been saved by the judicious use of poultices in lung fever and bronchitis. The best material for poultices is ground flaxseed, and the poultice is made by mixing the ground flaxseed with boiling water until a pasty batter is formed. Another good material for a poultice is ordinary corn meal made into a fairly stiff mush with boiling water. In making a poultice for the lungs of a young child cut out of muslin a little sleeveless jacket. Have it fit up well in the neck both front and back and open in the back and large enough to lap over two or three inches in the back. Cut notches for the arms in place of making arm holes. Having cut out one jacket, cut out another just like the first and sew the edges of the two jackets together, making a sack. Do not sew the bottom edges together, but leave an opening to put the poultice material in. Put the poultice material in and spread it about one-fourth to one-half an inch thick over the whole jacket, being careful to spread it evenly. The material must be put in the jacket hot, and there should be two jackets, so that in changing the poultice the fresh one may be drawn up under the cold one and the patient need not be exposed at all. The poultices are reheated by having a pot of water boiling on the stove and on top of this, above the water, a colander with a cover. Place the poultice to be heated in the colander; put on the lid tightly. The steam rising from the boiling water will thoroughly heat the poultice. Poultices should be changed often and under no circumstances should a cool or cold poultice be allowed on a child. Poulticing should continue for from six to twenty-four hours without a break. When it is done for relief of pneumonia, lung fever or bronchitis, a poultice should always be covered with dry flannel or with oiled silk, and when the poulticing is stopped the patient should be wrapped in

several layers of dry flannel and these taken off gradually. This will prevent taking cold or the more serious result, a relapse. Never use a poultice of any sort about the eyes. In case of sore eyes or earache and in many other connections, what are known as hot fomentations are of great value. For the eyes or ears hot fomentations are applied by wringing pieces of surgeon's cotton or pieces of soft cotton cloth out of water as hot as can be borne and applying to the sore eye or the aching ear. To apply hot fomentations to other parts of the body wring pieces of flannel out of water as hot as can be borne and place the flannel upon the part you wish to foment, covering with a dry piece of flannel. Hot fomentations, to be of value, must be very hot and changed often. Hot, dry air is sometimes used to advantage in rheumatism and joint diseases. Cold water and ice are used in some cases of inflammation of the eyes and in all forms of inflammation of the brain. The cold is applied by laying pieces of cloth in water or on ice and applying to the patient very often. Baths of various sorts are used to advantage, and among them might be mentioned the bran bath, made by placing a small bag filled with bran in the bath tub. This bath is useful in a number of skin diseases, such as eczema.

Injectiions—Injections will be found useful many times in emptying the bowels of sick infants and even older children. One of the best injections for an infant is glycerine, one part, and warm water, eight parts. Always be very careful in giving an injection to a young child.

Doses of Medicine for Children—A child one year old or younger should be given one-thirteenth the dose which is given to an adult.

A child two years old should be given one-seventh the dose which is given to an adult.

A child three years old should be given one-fifth the dose which is given to an adult.

A child four years old should be given one-fourth the dose which is given to an adult.

A child five years old should be given five-sixteenths the dose which is given to an adult.

A child six years old should be given one-third the dose which is given to an adult.

A child seven years old should be given five-twelfths the dose which is given to an adult.

A child eight years old should be given two-fifths the dose which is given to an adult.

A child nine years old should be given three-sevenths the dose which is given to an adult.

A child ten years old should be given five-elevenths the dose which is given to an adult.

A child eleven years old should be given eleven-twenty-thirds the dose which is given to an adult.

A child thirteen years old should be given one-half the dose which is given to an adult.

A child fourteen years old should be given one-half the dose which is given to an adult.

A child fifteen years old should be given five-ninths the dose which is given to an adult.

A child sixteen years old should be given four-sevenths the dose which is given to an adult.

Above the age of sixteen years give the ordinary adult dose. In this book the dose for children has been given in most cases, but where it has not follow the foregoing table and get at the proper amount by dissolving a tablet in a certain number of teaspoonfuls of water. For example, we wish to give a remedy in which the adult dose is one tablet to a child six years old. Looking at the table we find that a child six years old requires one-third the dose of an adult, therefore dissolve the tablet in three teaspoonfuls of water and give one teaspoonful of this mixture at a dose. In a child ten years old we find the dose five-elevenths of an adult dose, therefore dissolve one tablet in eleven teaspoonfuls of water and give five teaspoonfuls at a dose.

DISEASES OF THE NEW-BORN CHILD.

A number of diseases may occur to the new-born babe, but the most of these require so much skill in treatment that we will only mention one or two and advise that the family physician be called in all other conditions that assume an alarming attitude. Jaundice occurs in a great number of babies of from a few days

to a few weeks of age. It usually begins by the skin on the face and chest becoming a light yellow color. This color may increase until it is a bright yellow. The disease usually lasts from three or four days to two weeks. It very rarely affects the "general health of the babe and should it do so a physician should be called at once. General good care of the infant is all that is necessary in the way of treatment for jaundice in a baby a few days old.

Ophthalmia Neonatorium—This is the name given to the discharging sore eyes which occur in very young babies, and no more dangerous disease can possibly exist. Many of the blind people whom we meet have lost their eyesight by this disease in babyhood. This disease is caused by some poisonous material getting in the eyes and starting a violent inflammation. The lids swell, the eye becomes red, and a thick creamy discharge begins to run from the eyes. This grows worse rapidly until within a few hours to a day from the time the eye first became sore the lids swell tightly shut and the discharge is very free. If this is allowed to continue it will completely destroy the sight in from three days to a week. The disease is so dangerous that no time should be lost in taking the little one to a physician, and it also needs the most careful home treatment until the physician arrives.

For home treatment the following will be found to be the best that can be used: Carefully wash the eyes with water that has been boiled, using small pieces of surgeon's cotton or a very soft cloth, then press the eyelids apart and with the medicine dropper found in the Cabinet thoroughly wash out the eye with a solution made by dissolving two tablets of No. 1 in one-fourth cup of warm water. Having cleansed the eyes and used the medicine in the manner directed place pieces of cotton wrung out of hot water over the eyes. Change these every half-minute and keep up this bathing for fifteen minutes. Then again spread the eyelids apart and wash out thoroughly with the solution as before; allow the baby to rest quietly for fifteen minutes, and then again wash out the eyes with the solution, and for the next fifteen minutes use the hot fomentations or bath as described above. Do this—first a bath and then a rest with a thorough cleansing with the solution of No. 1—every fifteen minutes, and if you value

your baby's eyesight get a physician as quickly as possible. Be very careful with all cloths and towels used about the sore eyes, as another child or grown person might dry on the same towel and contract the disease. It is very liable to spread, and all care possible should be taken to prevent such an accident.

INFANT FEEDING AND NUTRITION.

The question of infant feeding is one which should occupy a foremost place in the thoughts of all parents, and no more fertile field for improvement in the development of a child can be found than that of correct feeding. It is not only what to feed an infant or child but when to feed it, how to feed it and how much to feed it. A child who passes the first three years of life in robust health is almost sure to retain the same robust health until adult life is reached, and very much of the health of an infant up to three years of age depends upon the food. The child must be fed in such a manner as will prevent indigestion, diarrhea and constipation, and by so doing more serious ailments, such as rickets and scurvy, can be prevented. There is but one ideal food for infants, and that is the one provided by nature—the mother's milk—and it is upon the known knowledge of the exact composition and all variations of woman's milk that the rules for the preparation of foods used as substitutes should be founded.

The best substitute for woman's milk is cow's milk, and by exercising a due amount of care very good results may be obtained in its use for infants. There are certain things which it is well to observe: first, the milk must be clean; second, the milk must be from healthy animals; third, the milk must be fresh; fourth, it is better to use the milk from several cows and not from one animal alone; fifth, the milk should be diluted to suit the age of the child.

If at all possible an infant should be nursed by its own mother, but if for some good reason this is not possible there are two methods which may be used—mixed feeding, or a combination of nursing and artificial feeding, and artificial feeding. A mother may nurse her own babe excepting under the following conditions: Should the mother have consumption in any of its various

forms she must not nurse her baby; nor should she nurse the little one if at childbirth she had a severe hemorrhage, childbed fever or convulsions; nor should she nurse the baby if she is subject to epileptic fits; nor if the mother is so frail and delicate in health that nursing a baby might be of permanent injury to her own health; nor should the mother attempt to nurse if previous trials have shown her inability to supply food enough for the little one.

For the sake of good health and good hygiene the utmost care must be taken to keep the breasts and nipples of a nursing mother clean. The nipples at least should be washed after each nursing, and once a day in a solution made by dissolving two tablets of No. 3 in a cupful of warm water. The habit of having regular nursing times should be established early in the child's life, and a very good nursing rule is: From the third to the thirtieth day, ten nursings, beginning at 7 o'clock in the morning, and nursing every two hours until 9 o'clock at night; then nurse between 12 and 1 o'clock and between 3 and 4 o'clock, making eight nursings during the day and two at night. From the fourth week to the end of the third month nurse eight times in twenty-four hours, two and a half hours between nursings, with seven nursings during the day and one at night. From the third to the fifth month seven nursings in twenty-four hours, three hours between nursings, six nursings during the day and one at night. From the fifth month until the baby is weaned six nursings in twenty-four hours, six during the day and none at night. Both for the sake of the mother and for that of the child weaning should be done gradually. Sudden weaning may bring on an attack of indigestion and is sure to produce more or less nervousness. A baby should not be weaned during the hot summer months.

Artificial Feeding—In artificial feeding there are several things to be remembered: first, the food must contain the same things that are found in woman's milk; second, the proportions should be about the same as in woman's milk; third, the different parts of the artificial food should act upon and be acted upon by the digestive fluids as nearly as possible in the same manner as those which are found in woman's milk.

We find that in woman's milk we have fat, sugar, albumen, salts and water. And it is upon the exact knowledge of the proportion of these constituents in woman's milk that we base the rules for artificial infant feeding.

It is important that an infant's clothing be not too tight over the abdomen, for no doubt many infants are forced to vomit their milk after nursing from the pressure of tight bands and clothing. The giving of a little sugar and water or catnip tea to a new-born babe before the mother has rested sufficiently to nurse it should never be allowed. The infant should be taught from the hour of its birth to sleep until each nursing hour arrives, and do not under any circumstances allow it to expect a "little more" to keep it quiet if it has not taken its full supply at the time prescribed. A little firmness early in life will do much to establish a rule that should have no exceptions. Should the mother be unduly excited by sudden anger or grief the infant should not be allowed to nurse for some time, as the milk from a mother so excited often produces convulsions.

As above stated, the best substitute for woman's milk in artificial feeding is cow's milk, and it must be fresh. It is better to use the milk from several cows than that from one cow alone. Before feeding to the child each bottleful should be tested with blue litmus paper found in the Cabinet. If the blue paper retains its color the milk is all right for use, but should it turn red the milk is unfit for use. This test is the most important one in the testing of milk before feeding an infant. The milk for the child, when received, should be kept in a clean vessel and be away from everything that might in any way taint it. Milk taints very easily and very quickly, therefore special care is needed in this direction. Do all things gradually with infants; never make an abrupt change unless some urgent cause exists. If you wish to alter the diet or the character of the clothing, do so with as little shock as possible. It must be constantly borne in mind, especially by those persons who frequently overlook small details, that a single curd in the milk may give rise to inflammation of the lining membrane of the stomach and intestines that will cause death in a few hours, or in a teething child may produce a convulsion that will prove fatal. During the heat of summer the bottle-fed child will require the greatest care. Until the child

reaches the fourth month the diet should consist entirely of milk. In an infant who is bottle-fed from the start, to a pint of milk add a pint of water which has previously been boiled, a very little white sugar and a tablespoonful of lime water. For a child three months old add three-fourths of a pint of water, previously boiled, to a pint of milk. Add a very little white sugar and a tablespoonful of lime water. For a child six months old and over add one-half pint of water, previously boiled, to a pint of milk and sugar and lime water as before. Having prepared the food in this way place in a clean pitcher and set in a cool place. About four ounces is the proper amount for a single feeding up to the time the child is six weeks old; after this a larger quantity may be given. When it is time to feed the baby place the food in the nursing bottle and place the bottle in a basin of warm water until the milk becomes warm enough to feed to the child. Never heat the milk twice, but procure fresh milk each time. As the child becomes older and the quantity of milk is increased small amounts of barley, oatmeal and rice water may be added to the milk; this will keep the bowels in good condition and also prevent, in a measure, the formation of large curds in the stomach. Milk must curdle in the child's stomach, as it is in this way that it is digested, and no alarm need be felt should the child occasionally vomit curds. When a child takes too much milk it is almost sure to vomit curds, and all that is necessary is to be careful and not feed quite so much the next time. Where fresh cow's milk cannot be obtained condensed milk may be used for infant feeding. One teaspoonful of condensed milk added to four ounces of water which has been boiled is enough for one feeding. When babies do not thrive well upon either of these foods or upon these foods with the addition of weak barley, wheat, oatmeal or rice water, it is best to depend upon the advice of a physician as to what is best to do next.

The mother should not undertake further responsibility. It is important that a child be given water to drink. Babies frequently crave it and a teaspoonful of water will often quiet a fretful baby. Use as little sugar as possible in infant feeding, as it frequently causes colic. Season all food with salt; it aids digestion.

DISEASES DEPENDENT UPON FOOD AND FEEDING.

During the first year of a child's life a majority of the ailments are directly traceable to some derangement in nutrition. The symptoms of deranged nutrition are so marked in infants as to divide the troubles into three distinct classes: First, cases of active starving, which are rapid and last from a few days to two or three weeks. Cases of this sort are rarely seen after the infant is three months old. Second, cases in which the food is not properly taken up by the body or, as it is called, imperfect nutrition. This may occur at any time during childhood, but is most frequently found during the first two years. Third, cases of a slow wasting away, continuing over a period of several months. This is seen in infants of any age. Cases of active starvation are due to lack of proper assimilation of the food given. Many of the symptoms in diseases of the stomach and intestines are due to a lack of proper assimilation or taking up of the food by the body. It sometimes occurs that a child will refuse to take the breast, and even food from a spoon is taken in such small amounts as to be insufficient to support life. Dr. Holt, in his valuable book upon Children's Diseases, mentions a case of a baby five months old, previously healthy, who was suffering from whooping cough; the baby utterly refused to take the breast or food from a spoon. At the end of four days its strength was almost gone, when food was put into the infant's stomach with a stomach pump and its life saved. Instances of this kind frequently occur. Again, starvation may occur when the mother has not a sufficient supply of milk for the little one or when the milk is not rich enough or when the stomach and intestines of the babe are so feeble that they do not digest enough of the food taken to preserve life and health, or when the food of the infant is for some reason suddenly changed, as from mother's milk to some prepared "baby food." In such a case the baby is often unable to digest a sufficient quantity of the new food. Starvation may follow such diseases as la grippe, malaria, lung fever etc.

Symptoms and Signs—It is very easy to detect this trouble, as the baby will become pale and thin very rapidly. The pulse will

be weak and rapid, the hands and feet cold and the circulation poor, the baby very weak, and many times fretful. The skin is usually covered with clammy perspiration, breathing is very rapid and nearly always irregular. The bowels are rather loose and move frequently. The food appears in the stool undigested. It is very difficult to say whether the baby will get well or not. Children under one month of age are liable to die in from two to ten days, growing weaker each day until death arrives. However, they may recover with proper and careful treatment. In older children the same thing occurs, but not so rapidly. When vomiting and diarrhea are present the chances for recovery are small indeed. High fever, cold hands and feet and free sweating are also serious signs. Cases of active starvation may be distinguished from cases of imperfect nutrition by the severe symptoms. In imperfect nutrition we may have the same symptoms, but they are not nearly so severe, and in slow wasting the slowness of the disease serves to distinguish it.

Treatment—When we have active starvation we can feel almost sure that the baby has very feeble digestive powers, and an endeavor should be made to supply a partly digested food or, if the starvation is due to the fact that the mother's milk is not sufficient or not rich enough the deficiency should be made up by artificial feeding. For instruction as to this see the section on Artificial Feeding. To prepare partly digested milk take one pint of fresh cow's milk and four tablespoonfuls of water and shake together in a bottle; then add five grains of extract of pancreas and three tablets of No. 2. Then place the bottle in water as warm as can be borne by the hand and keep it there for two hours, shaking the bottle occasionally. The extract of pancreas can be procured from the Home Remedy company. The milk should now be diluted by adding eight parts of water to one of milk, and it is then ready for use. In addition to the feeding mentioned the baby should be carefully rubbed each day after the bath, care being taken to always rub towards the heart and never away from it. In cases of extreme weakness it is advisable to give stimulants—preferably brandy. To one tablespoonful of brandy add two tablespoonfuls of water, sweeten a very little and give a small teaspoonful every two hours.

Imperfect Nutrition—Cases of this sort are very common, but the danger to the child's life is much less than in Active Starvation. The child does not seem to be ill, and yet it cannot be said to be well, and causes an endless amount of worrying on the part of the parents. A child may be born with feeble strength and a tendency to imperfect nutrition, or may be so nervous that its nutrition is interfered with. A child may be undersized at birth—possibly only weigh three or four pounds—and such a child is very liable to have trouble in digesting and absorbing its food. Very frequently keeping a child in a hot room and never allowing it any fresh air will cause trouble with the absorption of its food. Acute diseases, such as lung fever, malaria, la grippe, etc., may leave the little patient with the stomach and intestines in such a condition that the proper absorption of food is not possible.

Symptoms and Signs—In this disease the child's weight is an important factor. The child is nearly always below the average in weight, and the gain in weight is very slow, often being only two to four ounces when it should be a pound. The development of muscles is also very slow. Often such children are unable to sit up unaided until they are one year of age or over. The circulation is poor, the skin quite pale, and the hands and feet are inclined to be cold. These children are usually very restless and fretful and do not sleep at all well. Their digestion is very poor and easily upset and very little things will sometimes completely upset the stomach. A child suffering from imperfect nutrition is almost certain to take measles, mumps or anything it may be exposed to. Most children recover from imperfect nutrition if the proper care is taken.

Treatment—The treatment is chiefly a question of feeding and the partly digested milk mentioned on pp. 112-232 should be used, and the rules as to bathing, sleeping and airing should be carefully observed. Rubbing or massage is of value, care being taken at all times to rub towards the heart. Cod liver oil in children over five years of age is a benefit and should be given in ten drop doses three times a day. And in all cases No. 17 should be given. For a baby three months or younger, dissolve one tablet in thirteen teaspoonfuls of water and give one teaspoonful every

three hours. For a child from three months to one year old, use the same mixture, but give one teaspoonful every two hours. For a child from one year to three years, dissolve one tablet in six teaspoonfuls of water and give one teaspoonful every three hours. For a child from three to five years of age, dissolve one tablet in four teaspoonfuls of water and give one teaspoonful every three hours. For a child five to seven years of age, dissolve one tablet in three teaspoonfuls of water and give one teaspoonful every three hours. To a child seven to fourteen years of age, give one-half tablet every four hours, and to a child above the age of fourteen, give one tablet every four hours. In all cases where tablets are to be dissolved, crush the tablet thoroughly before dissolving.

All cases of slow wasting are very easy to recognize by their very slowness. The treatment of such cases is pure wholesome food, careful nursing, plenty of outdoor exercise and No. 17 as directed above for from one to three months. There are two well known diseases which are due to faulty nutrition or improper feeding and imperfect assimilation of food. These are scurvy and rickets.

Scurvy—This is a disease due to continued improper feeding and some of its signs are spongy, bleeding gums, swellings about the joints, bleeding from the nose and general paleness of the skin. Scurvy occurs as frequently in the country as in the city, and the food used previous to the attack is usually found to have been some one of the "infant foods" or condensed milk.

Symptoms and Signs—The symptoms are: swelling about the joints, especially the knees and ankles, with pain upon pressure or motion; gums are swollen and bleed easily, bleeding from nose, mouth, stomach or bowels, flabby muscles, paleness of the skin and history of using for a long period a particular food. Patients nearly always recover if the disease is recognized early and the proper treatment employed.

Treatment—Stop the use of the food suspected of having caused the trouble; give fresh cow's milk as directed in the chapter on Artificial Feeding; also give beef juice and the juice of any fresh fruit. In children over one year old, a small amount of potato may be added. Protect the child against cold and exposure and

give No. 8. For a child three months to one year take one tablet No. 8; thoroughly mash, dissolve in thirteen teaspoonfuls of water and give one teaspoonful every three to four hours. Keep this up for two to three weeks. To a child one year to three years, give of the above mixture one teaspoonful every two to three hours. For a child from three to ten years of age, dissolve one tablet in three teaspoonfuls of water and give one teaspoonful every three hours. To a child ten to fourteen years of age, give one-half tablet every four hours. To a child above the age of fourteen, give one tablet every four hours. Continue the medicine in all cases for from two to three weeks.

Rickets—Rickets is a chronic disease due to improper food and imperfect assimilation. It is not really a bone disease, and yet the bones suffer most severely in the disease. Rickets occurs most frequently in the large cities, but is occasionally found in the country. Rickets is not a fatal disease, and patients recover nicely under proper feeding, hygiene and treatment. Rickets may be produced by improper diet alone, but most frequently we find the child not only improperly fed, but surrounded by conditions which are entirely unsanitary. Rickets produces changes in the bones, most marked in the bones of the arms and legs and in the ribs. The bones become soft and bend easily and the ends of the bones become larger than normal.

Symptoms and Signs—Among the symptoms noticed early in the disease are constipation, extreme restlessness at night, with sweating about the head and little round hard spots forming along the rib bones. When the head sweats so profusely at night as to wet the pillow and the child tosses about and kicks a great deal rickets should be immediately suspected. Carefully examine along all parts of the rib bones for a rough, beaded feeling. If this is found it is certain that the child has rickets. Rickets produces many deformities, and in very extreme cases nearly every bone in the body is affected. The head usually appears too large; there are rough beads on the ribs; portions of the chest may be sunken in. There may be and in about one-half of the cases there is a curvature of the spine, and this may be toward the back or toward either side. The bones of the arms and legs are usually deformed in a symmetrical manner; that is, both arms will have the same curves and bumps and both legs will be twisted and

knotted in the same manner. All sorts of deformities of the legs occur in rickets. The muscles will tell us of the disease as well as the bones. They become flabby and do not develop properly, and for this reason children with rickets are not usually able to sit up straight or to stand or walk at the age at which they should. Pot-belly is quite a prominent symptom in rickets, and is rarely ever absent. There is no fever connected with rickets. It takes months to recover from this disease. The earliest signs of improvement are a less amount of restlessness, stopping of the head sweats; the patient is not so pale and may make attempts to walk. The deformities change very slowly indeed. Relapses are rare. From the description we have just given it will not be hard to name the disease. Rickets is never a fatal disease.

Treatment—Two of the most important things to be considered in the treatment of rickets are diet or feeding and hygiene or good health rules. A patient suffering from rickets should be fed on milk, cream, eggs, fats, rare meat and fresh fruits, and in addition cod liver oil is of much value. The child should live out of doors and in the country, if possible; should always have plenty of fresh air in the sleeping room and, in fact, make fresh air one of the principal medicines. A good bath every day with careful rubbing is a help, the bowels must be kept open. For this one or two tablets of No. 9 each morning before breakfast will be found to do the work nicely. In addition give No. 10 one-half tablet a day for a child up to one year of age; one-half tablet at night and one-half tablet in the morning for a child from one to four years of age; and one tablet before each meal for a child over four years of age. A tablespoonful of lime water with each meal is a benefit. Lime water is made by air slacking some lime thoroughly; then place some of the lime in a bottle and pour water over it; shake thoroughly and allow it to settle. Pour off the clear water and use that. For the treatment of the deformities produced by rickets consult your family physician.

DISEASES OF THE DIGESTIVE SYSTEM.

In children we frequently see a number of deformities which are easily remedied, such as harelip, cleft-palate, tongue-tie,

split hanging palate and occasionally split tongue. All such cases need the care of an expert surgeon, and as no treatment for such conditions can be given, the best advice is to take the little one to a surgeon of known ability.

Fever Sores—Cold Sores—These are seen very often in all cases of fevers, and often alone. They are so common that everyone will recognize them without a special description. They start with little blisters which break and form crusts. The best treatment is to first wash thoroughly with a solution made by dissolving two tablets of No. 3 in one-half cup of warm water and then apply No. 40, rubbing it in gently but thoroughly.

Eczema of the Lips—This is quite common. The red part of the lips becomes dry and cracks occur in them. They are usually painful and bleed easily. Wash the cracks thoroughly with a solution of No. 3 and rub on No. 40. If the cracks are very deep, touch lightly with burnt alum before applying No. 40.

Ulcers—These may occur on the tongue and are found many times in children suffering with whooping cough. They are easily recognized as they are simply a "sore spot" on the tongue. Touch lightly with burnt alum, wash with a solution of No. 3, and apply No. 41.

Difficult Teething—Although not a serious ailment, difficult teething causes more worry upon the part of anxious mothers than any other one thing which occurs during early child-life. About one-half of the infants cut their teeth without any difficulty, while in the other half a wide range of trouble is found. The nervousness, fretfulness, loss of appetite, loss of sleep, and general "sick" appearance of a teething child are well known to every mother. There may be constipation, or some vomiting, and the thermometer should always be used to look for fever. In treatment, first take the best possible care of the baby, supply good food, but do not force the little one to eat; keep the bowels open with No. 9; give the child a daily bath. If there is fever present, give one tablet of No. 11 every three to four hours until the fever subsides. If the teeth are anywhere near through, take a sharp penknife and hold the blade in boiling water for a min-

ute, and then allow it to cool and carefully cut the gum just over the tooth. Cut pretty well as the bleeding will often reduce the swelling of the gums. If there is much pain and soreness about the gums, wring small pieces of cotton out of water as hot as can be borne and place inside the lips and over the sore gums, care being taken not to scald the little one's mouth. Give the baby plenty of fresh air. By following the above directions, all ordinary cases can be cared for at home. Should alarming symptoms arise and remain for any length of time, send for a physician.

Inflammations of the Mouth—Simple or catarrhal inflammation of the mouth may result from an injury or may be due to taking some hot or irritating substance into the mouth. It may occur during teething, or may accompany measles, scarlet fever, diphtheria, etc.

Symptoms and Signs—The whole of the lining of the mouth is very red and swollen, and small spots of bleeding are frequently seen. The mouth is hot and there is considerable pain. The child will show signs of hunger but will either refuse the breast or bottle altogether or will drop it after a moment or two. The child is very fretful and cross and often the saliva will run from the mouth very freely. The tongue is nearly always coated and the edges very red. There may be some derangement of digestion with vomiting or mild diarrhea. The disease lasts only a few days.

Treatment—Thoroughly cleanse the mouth every thirty minutes with a solution made by dissolving two tablets No. 3 in a cup of warm water. Do not give the child hot or even warm food—it is much better cold. Small sips of cold water or a small piece of ice to suck will be beneficial. Should ulcers appear dust lightly with burnt alum before using the solution as above. The second form of sore mouth differs from the first in having small, round, yellowish-white ulcers present in the mouth and on the tongue. To treat these ulcers first dust lightly with burnt alum and then wash the mouth thoroughly every thirty minutes with the solution of No. 3 as above. Do not apply burnt alum more than once a day.

Another Form of the Disease—There is another form of inflammation of the mouth which is found only in children who

have teeth. This begins by ulcers forming at the point where the teeth and gums meet, the ulcers gradually extending over the mouth. This form of ulcerative sore mouth may be due to certain poisons, such as mercury, lead, phosphorus, etc. It is a rare disease, however.

Symptoms and Signs—The first things noticed are profuse spitting and a very bad breath. The gums are red, swollen and spongy and bleed very easily. Ulcers are seen near the teeth most marked in front. The tongue is swollen and is coated with a thick yellow coating. Unless treated this form of disease will last for months and very much affect the child's general health.

Treatment—If due to poisoning try to discover where the poison is coming from and remove it. Next cleanse the mouth every hour or two with a solution of No. 3, as in the previous forms of inflammation of the mouth. Immediately after this swab the mouth with a solution made by dissolving two tablets of No. 12 in a cup of water. To make a swab, twist a piece of absorbent cotton on a small stick or simply put a piece of absorbent cotton over the end of the first finger. This last treatment will cause some pain, but it will not be of long duration. In addition give one-half tablet of No. 12 every two hours the first day, every three hours the second day and every four hours for the remaining days you think it necessary to give medicine. Give plenty of fresh fruit, fresh vegetables, etc.

Thrush—Thrush is a disease in which we find the lining of the mouth and the tongue covered or partially covered with small or large white patches. The disease is caused by a germ which forms a sort of mould or fungus which we see in the white patches. This disease is most common in thickly settled parts of cities where care as to cleanliness of children's mouths, bottles, etc., is not of the best.

Symptoms and Signs—The first thing noticed will be small white spots which resemble spots of coagulated milk, but which cannot be wiped off. If taken off by force a number of little bleeding points will be seen. There may be only a few patches or the whole mouth may be covered with them. The mouth is dry and the tongue coated and there is some difficulty in swallowing. Thrush is not a dangerous disease.

Treatment—By being careful to keep the mouth clean, nipples clean and bottles and rubber bottle nipples clean, thrush may be prevented. Rubber nipples and tubes for nursing bottles should be kept in a solution made by dissolving two or three tablets of No. 5 in a pint of warm water when not in use. The mouth should be thoroughly cleansed five or six times a day with a solution made by dissolving two tablets of No. 3 in a cup of warm water. Use a swab for this cleansing. Cases of severe inflammation of the mouth may follow measles and other diseases. If they do not yield readily to the treatments here given a physician should be called.

Diseases of the Upper Part of the Throat—Active inflammation of the upper part of the throat may be a disease by itself or it may occur with measles, scarlet fever, diphtheria or la grippe; cold and exposure may produce it. The inflammation may involve the tonsils, the soft palate and the whole of the upper throat or any part of these.

Symptoms and Signs—There is pain upon swallowing and in the angles of the jaws. The throat seems dry and rough and there is often an irritating cough. The disease quite often begins very suddenly with vomiting, and there is often fever as high as 103° or 104°. In naming the disease one must be sure that it is not scarlet fever or measles. If there is scarlet fever in the neighborhood and the above symptoms are present, the patient should be treated as if scarlet fever were the disease, and two or three days will settle the question as to which it is. Carefully read over the section on Scarlet Fever. In measles there is not so much trouble as the "measles" appear on the skin very soon and settle all questions.

Treatment—Give at once to a young child one tablet No. 4; to a child over seven years of age, two tablets No. 4; to a grown person give two tablets No. 16. Put the child to bed. If the patient is an infant do not feed as much as usual; if an older person or a grown person, feed entirely on liquids and soft foods such as milk, beef tea, chicken broth, any sort of soup, thin oatmeal gruel, very soft boiled eggs, raw oysters, oyster soup, etc. Quench the thirst with small sips of cold water or small pieces of ice. To a child up to three years of age give one-half tablet No.

13 every three hours; to a child ten years old give one tablet No. 13 every three hours; to an adult, two tablets No. 13 every three hours.

Inflammation of the Hanging Palate—Inflammation of the hanging palate or uvula sometimes occurs, and besides causing some pain causes a very troublesome cough and considerable gagging. The very large hanging palate always tells you when this trouble is present, and it may be relieved by placing ice about the throat on the outside and upon the swollen uvula at the same time. Also take a needle and run it into the swollen uvula many times. This will cause no pain whatever and will reduce the swelling. Where ice cannot be had use hot water in the same manner. In all cases frequently swab the swollen palate with a solution made by dissolving four tablets of No. 3 in one-fourth cup of warm water. Should the hanging palate seem unusually long and not seem to be swelled and yet cause a cough by its laying on the back of the tongue, take the patient to a physician and have the elongated portion cut off.

Abscesses and Adenoids—Abscesses sometimes occur in the throats of children, and when such a condition is suspected see a physician at once, as you cannot care for this trouble at home. There is another condition known as adenoid vegetations, which occur very frequently in childhood, and which very seriously affect the child's health. This is another case for the surgeon's care, but the signs and symptoms are described here. It is advised, however, that a surgeon be called as soon as the trouble is noticed.

Symptoms and Signs—Among the signs by which this condition may be recognized are: discharge from the nose of rather thick and yellowish matter, sometimes constantly, at other times with intervals when the nose is comparatively free; signs of obstruction in the nose; a nasal voice; the child breathes with its mouth open and "wheezes" more or less, and is very liable to snore while sleeping and sometimes to have much trouble to breathe at all while asleep. The voice is liable to be hoarse and the child may have earache or be somewhat hard of hearing. The expression on the face is dull and stupid. The child is not strong and is rather pale, listless, has headache often and is frequently somewhat sick for no particular reason; usually

breathes through the mouth both day and night; frequently cannot blow the nose at all. The condition is always better in summer and worse in winter. A child suffering from adenoids will be pale and seem bloodless. This paleness and also inability to sleep quietly is produced by the blood not receiving air enough. The growths prevent the child from breathing through the nose, and as a result of this the breathing is irregular and not enough air is carried to the lungs to properly aerate the blood and the child becomes poisoned by carbon dioxide gas.

Inflammation of the Tonsils—Quinsy—The tonsils are the round or oblong bunches which lie on either side of the throat and which usually attract the attention first when looking into a child's throat. The tonsils are subject to a variety of inflammations and cause a great deal of trouble all through life, but especially in childhood. Inflammation of the tonsils, or quinsy, occurs most frequently in children, but is also seen in adults, and is a disease of some seriousness.

Symptoms and Signs—Inflammation of the tonsils nearly always begins by symptoms of a general character. Usually there is a slight chill and decided sick feeling; sometimes vomiting and occasionally diarrhea, pain in the back, the muscles and the head ache, the temperature rises rapidly to 102° or 104°. Then the tonsils become somewhat sore and begin to swell. Small yellow spots may appear on the tonsils, pain on swallowing, the patient frequently being able to swallow only after repeated efforts. The mouth does not open easily; the swelling of the tonsils continues until the whole throat is filled and the patient is frequently so sick as to be unable to sit up at all. At this time there is matter or pus in the tonsil, and unless lanced the tonsil will frequently break and discharge into the throat. All symptoms subside rapidly after the abscess is lanced or breaks.

Treatment—If quinsy is recognized early it may be broken up by giving two tablets of No. 14 every two hours. This is the dose for all children over five years of age. For all children under five years, give one tablet of No. 14 every two hours, and for all adults, four tablets No. 14 every two hours. In many cases, however, it cannot be broken up. In these cases give to a child less than five years old, one-half tablet No. 13 every four hours;

to a child five years and over, one tablet No. 13 every three hours; to an adult give one tablet No. 13 every two hours. Also give at the same time that the above is given to a child less than five years old one tablet No. 15; to a child five years and over, two tablets No. 15; to an adult, four tablets No. 15. Cloths wrung out of hot water and placed on the neck will be a comfort, and gargling hot water is a benefit. In addition to the above, give a child younger than three years one tablet No. 9 at night and one tablet in the morning; to a child over three years of age, give one tablet No. 4 at night and to an adult, give one tablet No. 16 at night and one tablet in the morning.

Chronic Enlargement of the Tonsils—This trouble is easy to discover. Take the tongue depressor found in the Cabinet and hold the child's tongue well down, having the mouth opened wide, then with a small hand mirror throw the light from a window or a lamp into the child's throat. If the child has chronic enlargement of the tonsils they will be noted on either side of the throat as large red bodies, sometimes as large as a small walnut, and in these will appear little holes. Other signs of chronic enlargement of the tonsils are: snoring at night, a foul breath, coughing up small hard yellowish-white pieces of matter of the consistence of cheese, pale skin, mouth breathing, thick voice; the child may have earache or be hard of hearing, and this is due to the enlarged tonsils pressing on the small tube which leads from the throat to the ear. Frequent attacks of quinsy is also a sign.

Treatment—There is only one real treatment for this trouble, and that is to take the child to a competent throat specialist and have the tonsils removed. They will always give more or less trouble until this is done. A treatment that will sometimes completely cure a case in from one to six months is: Dissolve in a four ounce bottle of water ten tablets of No. 3 and use as a gargle three times a day. At the same time give one tablet No. 17 before each meal.

DISEASES OF THE STOMACH.

In children it is very difficult to entirely separate the diseases of the stomach from those of the intestines. There are some conditions, however, which belong entirely to the stomach and these will be considered now and later will be taken up those diseases in which both the stomach and the intestines are involved.

Vomiting—Infants and young children vomit very easily and this due partially to the size and position of the stomach. An infant will frequently vomit from the overfilling of the stomach. The infant stomach is unable to hold and digest an overload, and nature steps in and causes vomiting, thereby throwing off the excess of food and allowing the stomach free action to digest the remainder. In infants in whom vomiting frequently follows feeding the only treatment necessary is to diminish the amount of food given at any one feeding. Vomiting also occurs in cases of acute indigestion, though usually in these cases the vomiting does not take place until several hours after feeding. Fever may occur and the infant be very sick indeed, and the food which should have been digested comes up in an undigested state. Vomiting is always present when there is any obstruction in the intestinal tract. This vomiting is persistent and cannot be stopped by any of the ordinary measures. After a few attacks of vomiting it will be noticed that the vomit contains a greenish yellow material, which is bile from the liver; it may even continue until matter which ordinarily passes through the bowels will be vomited. When this occurs it is a sure sign of an obstruction of some sort in the intestines. In this sort of vomiting the patient, whether a child or adult, soon becomes very sick. The treatment for this form of vomiting is an operation, and that alone will relieve the symptoms, hence the only advice to be given is: Call a surgeon. Certain nervous diseases, such as tumor of the brain and some forms of brain fever may cause vomiting and this will be taken up under the diseases mentioned.

Vomiting very frequently occurs in children at the beginning of acute diseases such as whooping cough, scarlet fever, lung fever and malaria. Poisons will nearly always produce vomiting.

Gastralgia—Stomachache—By this we mean any sudden severe attack of pain in the stomach. One of the most frequent causes of this trouble is the overloading of the stomach or taking into the stomach of such things as green fruit or cabbage. A great many food stuffs will cause this trouble in children. Exposure to cold, wet feet, drinking ice water and many other causes will also produce it.

Treatment—If there is any reason at all or even a faint suspicion that the child has taken anything into the stomach which might cause the pain the first thing is to empty the stomach. To do this give one tablet No. 18. If vomiting does not occur in from ten to fifteen minutes repeat the dose. Then put the child to bed and put a turpentine stupe over the stomach. For directions as to making the turpentine stupe see the opening section on Children's diseases. In addition to this dissolve one or two tablets No. 19 in hot water and give this to the child. Repeat this dose every fifteen minutes until pain is stopped. A hot water bottle will sometimes answer as well as the turpentine stupe for the local applications over the stomach.

Acute Indigestion in the Stomach—This occurs whenever the stomach cannot digest the food placed in it. This may be due to the fact that the work of digesting may be too great or for some reason the stomach may not be capable of digesting as it should. Under the first condition the giving of improper food is one of the most frequent causes, as the giving of cow's milk to infants when it has not been sufficiently diluted. Any abrupt change in diet may produce the same thing. In older children the use of too much pastry or unripe fruit, swallowing food before chewing thoroughly and overloading the stomach may cause this disease. Reasons which may cause the stomach to be incapable of digesting as it should are: great fatigue, overheating, cold hands and feet, troubles in teething, and the beginning of acute diseases.

Symptoms and Signs—One of the first symptoms is the fact that food will remain undigested in the stomach for five or six hours after eating instead of being digested in two or three hours, as it is normally. This produces a feeling of heaviness in the stomach and frequently vomiting follows, which ceases when the

stomach is empty. Just before vomiting commences there may be pain in the stomach, general sick feeling and nausea. There may also be stupor, or even the reverse, excitement, restlessness, and sometimes convulsions. The temperature is from 99.5° to 102°. The appetite is lost and the tongue coated. Diarrhea is generally present, and undigested food will be found in the stools. The stomach may seem bloated. Patients suffering from acute indigestion of the stomach nearly always get well.

Treatment—One of the best methods of treating is washing out the stomach with warm water. This is done by having the patient “swallow” a stomach tube, then filling the stomach full of warm water. By quickly lowering the upper end of the stomach tube the contents of the stomach are siphoned out. When this is not possible it is well to produce vomiting by giving a large amount of lukewarm water which will in most cases produce very free vomiting, and thus having emptied the stomach, give it absolute rest for three hours. Then give two teaspoonfuls of the following every hour: take the white of one fresh egg, add one-half pint of cold water, a little salt and one teaspoonful of brandy or whiskey. Stir thoroughly and serve cold. After from twenty-four to thirty-six hours, beef broth may be added, and after three days milk may be used. If a nursing child, it should not be allowed at the breast at all for twenty-four hours. After that allow nursing for three minutes every three hours and after twenty-four hours gradually increase the time of nursing until the usual time is occupied. Keep the bowels working well by giving one tablet No. 9 at night and one in the morning. The dose in this case is the same for all ages. When there is persistent vomiting give one tablespoonful of lime water every two hours. Dissolve in this one tablet No. 2. Warm flannel or cloths wrung out of hot water over the stomach are of much benefit. In all cases be careful not to overfeed the patient. Starve the patient for four or five days and then gradually increase the food until the usual amount is reached.

Ulcer of the Stomach—The signs of this disease are pain in the stomach, tenderness over the stomach, vomiting of blood which will have something the appearance of coffee grounds, and sometimes blood is found in the stools, nearly always fever.

Ulcers of the stomach are very rare, but the few concise signs given will enable one to easily recognize the disease.

Treatment—Insist upon absolute rest in bed. Allow the patient to swallow tiny pieces of ice; give small doses of whiskey or brandy. Give one tablet No. 15 every two hours. The dose in this case is the same for all ages. This is all that will be needed in the way of medicine for four days. Then stop giving No. 15 and give instead one tablet No. 17 before each meal. The dose is the same for all ages.

DISEASES OF THE INTESTINES.

Diarrhea—This disease is very common to childhood and may occur at any age and at any season of the year, but is most frequent in the summer months. Diarrhea may be caused by an almost endless number of things. Among the usual causes, however, are a general weak constitution, teething, overfeeding, underfeeding, the wrong sort of foods, taking cold, and wet feet. Diarrhea may be caused by partly cooked foods, such as oatmeal, rice, fresh fruits containing seeds, green corn, cabbage and a number of vegetables. Sometimes severe cases of diarrhea are produced in children by drugs which are given as laxatives. Again diarrhea may be produced by certain nervous influences, such as excessive fright, great exhaustion, nervous fretfulness in teething, etc. Indigestion will also produce this trouble.

Treatment—First give from one to six tablets of No 4, according to age. This will cause a very free movement of the bowels and will remove the filthy and poisonous material from the system. After the bowels have moved freely give one tablet No. 20 every two to three hours. The dose is the same for all children. In mild cases give one tablet every three hours and in more severe cases one tablet every two hours. In addition to this feed the child on boiled milk and bread, served hot, for two or three days. Do not give any other food and the recovery will be rapid.

Cholera Infantum—Summer Diarrhea—This is a disease which is very common in young children in summer, and especially common in crowded cities. A great many of the babies

and young children who die do so from the effect of this disease. Cholera infantum is produced by a germ, and this germ requires much heat to grow properly, hence we find cholera infantum at its height in the hot summer months. Chronic indigestion or improper feeding frequently cause this disease.

Symptoms and Signs—In mild cases of cholera infantum the disease usually begins with diarrheal discharges. The little one is fretful and peevish and does not rest well at night. The movements from the bowels gradually become more frequent and always contain undigested food; they are thin and are usually green or yellow. Very soon a disagreeable odor is noticed and a thick stringy substance is noticed in the stools. The tongue is coated. The child becomes pale and its limbs are soft and flabby. It does not sleep well and has the appearance of a "sick" baby. The above we find only in mild cases. In severe cases we find that vomiting and diarrhea begin about the same time. The vomiting is quite frequent and continues until bile will be found in the vomit. Food or drink start the vomiting again after it has stopped. The stools are large, watery and frequent, often as many as ten or fifteen in a half day. At first they may be colored, but they soon become only a watery discharge. There is very little if any odor to the stools. There is a high temperature and the patient is very sick—becomes so very early in the disease. The little one loses weight very rapidly. The face has an anxious expression; the eyes are sunken and the features sharpened and there is a peculiar pallor. Early in the disease the child cries or moans and throws itself about very actively in a sort of delirium. This is followed by dullness and stupor and sometimes unconsciousness or convulsions. The temperature is from 102° to 104.5° and in cases which die often, rises to 107° just before death. The skin is often clammy and the feet and hands cold. The pulse is rapid and very weak. The breathing is frequent and irregular. The tongue is coated and dry. The abdomen is sunken. There is great thirst and the child will drink often, even though each drink may produce vomiting. Very little urine is passed. If these severe symptoms continue more than one day death is almost sure to result. As the patient gets better the vomiting stops, the stools become less frequent, the

pulse becomes better, the temperature gradually becomes normal, the appetite returns and the nervous symptoms disappear. In naming this disease bear in mind the following points: vomiting, frequent large watery stools, great thirst, high temperature, restlessness, dry coated tongue, pinched anxious face, weak rapid pulse, rapid breathing, sometimes unconsciousness, cold hands and feet. This is a very dangerous disease, and every year many children die from its effects. Death occurs in fully one-half of the cases, and it is well to call a physician. His treatment, however, will not differ to any great extent from that given here, nor can he do more than can be done by the intelligent use of the treatment given below, but in view of the seriousness of the case and knowing that one-half or more of these cases terminate fatally it is well to call a physician that you may have the satisfaction of having had a skilled attendant should a fatal termination occur.

Treatment—In no disease is the proverb, "An ounce of prevention is worth a pound of cure," more applicable than in this disease, and should a child have any derangement of digestion whatever or any bowel trouble, attend to it at once; do not give it a chance to go on and develop into this treacherous disease. Do not allow a diarrhea to run in summer because the child may be teething. In treatment first inject as much warm water as possible into the bowel and thus thoroughly wash it out; have the patient drink a large quantity of lukewarm water and thus wash out the stomach. Next give one tablet No. 15 every half hour for four hours, then one tablet of the same every three hours; the dose is the same for all ages. Make a fairly strong solution of salt and water, heat it and wring cloths out of this. Do not wring them dry, however; place over the abdomen for ten to fifteen minutes. Do this once every hour or two. Reduce the fever by giving sponge baths or, if this does not seem to be sufficient, give an entire bath, placing the child in lukewarm water and gradually adding cold water; keep the child in the bath about ten minutes and repeat the bath every hour. Put a tablespoonful of whiskey or brandy in four tablespoonfuls of ice water and give one teaspoonful of this every two hours. For cold feet and hands use a hot water bag. After the patient becomes well enough to take nearly

the usual amount of food give one tablet No. 17 before each meal and continue this for from two to four weeks. The dose is the same for all ages.

Indigestion in the Intestines—The greater and the most complicated part of digestion takes place in the intestines, hence we find more cases of intestinal indigestion than we do of indigestion in the stomach. Sometimes the two may be associated, but more frequently the trouble is located entirely in the intestines. This disease differs much in infants and in older children, therefore will be considered separately.

In infants this disease may be caused by general weak condition, unhygienic surroundings, improper feeding, etc. The most frequent cause, however, seems to be an excess of proteids in the infant's food (for full explanation of the term, proteids, see the chapter on Foods, pp. 40-43 and note on p. 35) or in other words the food is too rich.

Symptoms and Signs—The signs of the disease are loss of weight, pale color, poor circulation, much fretfulness and crying and restless sleep. The tongue is nearly always coated and the appetite is good, the infant eating whenever food is offered. Vomiting occurs in all cases, but is not severe nor very frequent. The baby is either constipated or has diarrhea all of the time. When diarrhea occurs the stools are watery and contain curds either in lumps or flaky masses. The movement of the bowels is not attended by pain, but there is a noticeable amount of gas. The odor of the stool is not bad. When constipation is present the stools are whitish and are smooth and pasty or hard balls which pass after much straining and are sometimes streaked with blood. Frequently the bowels will not move for days unless an injection or cathartic is used. Constipated cases may have severe attacks of colic. These symptoms drag on for weeks at a time until the food is corrected.

Treatment—Attention to the feeding is of first importance. If diarrhea is present give one tablet No. 20 every three hours until the diarrhea is checked. When constipation occurs give one tablet No. 9 every two hours until the bowels move freely; then give one tablet No. 9 every four to six hours until the trouble is entirely removed.

In older children the most common cause of this disease is an excess of carbohydrates (see the chapter on Foods, pp. 41-43 and Note on p. 35) in the food, and this is brought about by feeding too much potato, oatmeal, etc. Other things produce this trouble.

Symptoms and Signs—Patients suffering from this disease are pale, thin, not strong, small limbed and often have distended abdomens. There is much gas in the intestines and bowels; dark rings are seen under the eyes; the complexion is muddy; they are cross and irritable, hard to control, hard to amuse or interest and are hard to care for in every way. They are below the average in height and weight. They do not sleep well, often tossing about, waking, crying out, grinding their teeth, etc. They perspire very easily and are liable to have cold hands and feet. The bowels are constipated and the stools are of a whitish color, lumpy and have a foul odor. Large amounts of gas pass from the bowels. The appetite is changeable. The tongue is usually coated and the breath has a bad smell.

Treatment—Stop giving starchy foods, such as potatoes and cereals, and feed the patient on rare beef, beef juice, broths, milk, etc. Malted milk may also be used to advantage. The child should be fed at regular intervals. Fresh fruits may be given in small quantities. Give one tablet No. 9 before each meal and one at bedtime; the dose is the same for all ages. Give one tablet No. 17 after each meal; the dose is the same for all ages. Continue this for from ten to twelve weeks. Give the child plenty of fresh air and a reasonable amount of exercise.

Colic—By colic we mean the pain which occurs in the intestines and not that which occurs in the ^{stomach}. Colic may be due to swallowing certain things, such as fruit seeds. The special colic of infancy is associated with gas in the intestines or bowels, and is due to indigestion. Many babes have almost daily attacks of colic. Cold feet or chilling the body suddenly may produce colic.

Symptoms and Signs—Colic is not hard to recognize, and every mother is more or less familiar with its signs. The face contracts, the cry is sharp and piercing, subsiding and then recurring with renewed vigor; the legs are drawn up and the abdomen is hard and usually somewhat distended. As soon as the gas

passes the child becomes quiet and falls asleep. Sometimes there is only fretfulness and the child cannot sleep.

Treatment—An injection of warm water will sometimes relieve colic in infants. The abdomen should be covered with hot flannels, and if the feet are cold place a hot water bag near them. Give one tablet No. 19 every fifteen to twenty minutes until the pain is relieved. In addition to this give one tablet No. 15 every two hours until three doses have been given. The dose of the two remedies above is the same for all ages.

Chronic Constipation—Constipation may be said to be present wherever the stools are fewer and dryer than normal. Many things produce chronic constipation. It may be caused by the juices of the liver or intestines growing less in quantity than normal. Very often the twisting movement of the intestines is not strong enough or, in other words, the intestinal muscles lack the proper tone. In other cases constipation is due to the fact that too great a proportion of the food is absorbed by the body and not enough passes into the bowel to form a good stool. A sore spot about the anus or piles may cause constipation. Improper diet causes constipation, as does also the habit of not attending to the bowels when nature makes a call. Exercise also has a marked influence upon the bowels.

Symptoms and Signs—In some cases the constipation is the only symptom present. In most cases other signs are present—gas in the bowels, colicky pains; blood may be passed in the stool; piles may be produced; sores may occur at the anus; nervousness may develop; there is frequently headache present; the sleep is disturbed and signs of indigestion may occur.

Treatment—Treatment must be continued for a long time to be of value, but careful attention to details will always effect a cure. The first thing is to set some certain hour each day, preferably just after breakfast and see that the child goes to stool at that time, as habit is a large factor in this disease. For very young infants the addition of a little cream to the milk used daily will be a benefit. In older children the use of fresh fruits, rare meats and eggs cooked soft will be a benefit. Rubbing is of benefit and the regular exercise of the muscles should be carefully looked after. Give to an infant one tablet No. 9 in the morning

before feeding and one about noon and another just before going to bed at night. To a child from two to four years of age, give one tablet No. 4 in the morning before breakfast; to a child from four to ten, one tablet No. 4 before breakfast and one before going to bed at night. Older children may be given one tablet No. 16 before each meal if it should be found necessary. At any time when for any reason it is desired to give a remedy which will thoroughly empty the bowels, use from one to five tablets of No. 16. Sometimes the intestines will roll and twist upon each other in such a manner as to form a kink. This will entirely prevent the movement from the bowels and is a very serious condition, but as it is a condition which can only be attended to by a skilled physician it is only mentioned here.

Appendicitis—At the end of the small intestine, just below the point where the small and large intestines join, there is a small, hollow, worm-like body which is known as the vermiform appendix. Sometimes fruit seeds or rough particles of food lodge in this worm-like sac instead of passing on into the large intestine. There is no way for the material to escape when once it gets into this sac, and as a result it stays there and sets up an inflammation, and this inflammation is known as appendicitis. There are many varieties of this disease. In the simple form, the appendix inflames, swells somewhat, and then in some manner the foreign substance is discharged into the intestine and speedy recovery follows. The ulcerative form occurs in typhoid fever and in consumption, and the outcome depends upon the outcome of the causative disease. The perforative form, in which the foreign substance lodged in the appendix starts an inflammation, is followed by the forming of an abscess. This abscess grows until it reaches the point of bursting; if it bursts into the intestine the patient will usually recover, but if it breaks into the abdominal cavity the chances for the recovery of the patient are very slight. There is more or less fever connected with all cases of appendicitis.

Symptoms and Signs—Appendicitis usually begins with severe pain on the right side just below the ribs, usually covering only a small area. There is also vomiting, constipation and fever. In the region where the pain first began will be found a bunch

about the size of a hen's egg. It will require careful feeling to discover this. Sometimes, however, this bunch will be very noticeable and in such a case a physician is needed at once. About one-half of the cases of appendicitis die. The disease is one which cannot be treated at home at all and with even a faint suspicion of such trouble the family physician should be called. Appendicitis in children and in adults is very much the same.

Tape-worms—Are taken into the body by eating food which contains the tape worm eggs. Pork, beef or fish may contain the eggs of the tape-worm, and thus they may very easily be taken into the human system. Tape-worms are rare, however, and the danger of taking them into the stomach is slight indeed. The egg once taken into the stomach passes into the intestine and remains there for its growth, which usually takes from three to four months. After this time the head continues to grow and for every new joint at the head an old one is thrown off at the tail. A tape-worm lives from ten to thirty years. Each piece cast off from the tail is full of eggs and this passing from the body may be eaten by animals. From the animal's stomach, the young works its way into the muscles and must again be taken into a stomach before a full fledged tape-worm can develop.

Symptoms and Signs—There is only one sign which can be certainly relied upon and that is the finding of the castoff pieces of the worm in the stool. There are other symptoms but they are very indistinct and do not mean much. These are bad breath, attacks of colic, an appetite which cannot be satisfied, and diarrhea.

Treatment—To children, give two tablets of No. 4 at night. Do not allow the child to eat any breakfast and two hours after the child rises give one capsule containing five drops of the oil of male fern. Repeat this dose every hour until four doses have been given. Immediately after giving the last capsule, give the child four tablets No. 9, and one-half tablespoonful of castor oil. Allow the child to take small quantities of milk during the day but no other food. Watch the stools carefully, and be sure that the head of the worm is passed.

To adults give three tablets of No. 16, and four tablets of No. 4 at night and no breakfast in the morning, and after the bowels

have moved give five drops of the oil of male fern in capsule every hour until six doses have been given; immediately after the last dose has been taken, give one tablespoonful of castor oil and five tablets No. 4. Use small quantities of milk but no other food for from ten to twelve hours after the last medicine has been taken. Watch carefully for the head of the worm.

Round-worm—This worm is found in the small intestine. It is from five to ten inches long and light grey in color. These worms occasionally pass into the stomach and are vomited. The presence of round-worms is surely indicated by finding them in the stools and this is really the only sure indication. There is, however, colic, gas, indigestion, loss of appetite, restlessness, disturbed sleep, and among the surer signs are grinding of the teeth at night while asleep, picking at the nose, and a very pale upper lip. There may also be chills, headache, dizziness and many other symptoms. Round-worms are usually found in great numbers if found at all.

Treatment—At night give two tablets of No. 9 and one tablet of No. 4. Do not give any breakfast and commencing one hour after rising, give one tablet No. 21 every hour until the bowels move very freely.

Thread-worms—Pin-worms—These worms are found in the lower bowel and are very small, about one-half inch long. These worms when found are usually in great numbers. The presence of these worms produces intense itching about the anus. There is frequent desire to pass urine. The stools have a slimy appearance.

Treatment—Inject into the rectum one or two pints of warm water in which has been dissolved two tablets No. 2. After this has passed inject a pint of strong warm salt water and retain as long as possible. After this has passed wash the anus thoroughly and rub well with No. 40. Repeat this treatment every other night for two weeks. Then miss one week and treat again for two weeks. In addition to this give one tablet No. 16 in the morning and one at night. Keep this up during the entire treatment.

Diseases of the Rectum—During the act of emptying the bowels the rectum may protrude to a greater or less extent, and this is known as prolapse. The bowel will come down during

defecation from a tiny ring of mucous membrane to a bunch as large as a good-sized pigeon's egg. This bunch is of a deep purplish-red color and bleeds easily. The treatment consists in gently pushing the protruding part back with the fingers and applying cold cloths to the part after the gut has been placed in proper position. Watch carefully after each stool for a week or two and repeat the treatment when necessary and the trouble will be removed with but little difficulty. Inflammation of the rectum sometimes occurs, and may be due to irritating injections, to pin-worms, or may follow the use of suppositories. The treatment is: Cleanse the parts carefully and apply No. 40 every night until relieved.

Diseases of the Liver—Disease of the liver is rare in childhood, yet does sometimes occur. Jaundice is sometimes seen, and is due to some obstruction to the flow of bile from the liver into the intestine. The treatment is one tablet No. 16 at night and one in the morning until the bowels move freely and the yellow appearance disappears from the skin. Congestion of the liver occurs from malarial fever and from certain of the poisons; it is cured when the conditions which produce the congestion are cured. Abscess of the liver is sometimes seen in children. Its cure must be effected by the surgeon, and it requires an expert physician to discover this disease when present in children. When a child has chronic bone or joint disease the liver is at times diseased and becomes very large, and between the cells of the liver substance occur particles of wax-like fat. Cases of this sort require the care of an expert physician. Sometimes in children suffering from consumption or from active starvation the liver will take on an excessive amount of fat and this disease is known as fatty liver. The treatment of the disease which produces the trouble is the only treatment for this condition. Gallstones are recorded as having been found in children, but the truth of this is doubtful.

Peritonitis—Inflammation of the Bowels—The intestines are covered by a membrane which is known as the peritoneum, and this sometimes inflames and causes much trouble.

Symptoms and Signs—The symptoms or signs of this disease are quite plain. The disease begins with high fever—from

103° to 105°—vomiting, and pain in the abdomen. The child is restless and fretful and the abdomen soon swells, and if gently thumped, will sound hollow. This swelling and hollowness is always present in this disease. The breathing is shallow and rapid. The patient usually lies on the back with the legs drawn up. The pulse is small and rapid and the patient is very sick from the beginning. The hands and feet are frequently cold. The face has a pinched look and the features indicate pain. Most cases are constipated although diarrhea sometimes occurs. The abdomen is always tender. The appetite disappears. Inflammation of the bowels may be found with consumption but in such a case it cannot be treated alone, and therefore need not be considered here.

Treatment—Wring cloths out of cold water and lay over the abdomen. If the child rebels against the cold, hot cloths may be substituted, but they must be hot. A very little turpentine sprinkled over the hot cloth will be a benefit. The feeding must be conducted with care, as the tendency to vomit is always present. Milk and soft or raw eggs should be the only food. Also give as a stimulant one tablespoonful of brandy or whiskey in four tablespoonfuls of water; stir, add a piece of ice and give one teaspoonful every two to three hours. If the patient is constipated when first taken sick, give one tablet No. 16 at night and one in the morning, but under no circumstances attempt to move the bowels later on in the disease. During the entire course of the disease give to a child from two to six years of age one tablet No. 15 every three hours; to a child six to ten years of age, one tablet No. 15 every two and one-half hours. To a child over ten years of age, one tablet No. 15 every two hours. Take the best possible care of the child and above all keep the patient perfectly quiet.

DISEASES OF THE RESPIRATORY SYSTEM.

Nasal Catarrh—Nasal catarrh is very common to childhood and if carefully treated is comparatively easy to overcome. In certain children nasal catarrh appears from no special cause while in others it follows continued colds. Deformities of

the throat partial and stoppage of the air passages very frequently cause catarrh.

Symptoms and Signs—A continued discharge from the nose, snuffling, nasal voice, sores about the end of the nose and on the upper lip, headache, sometimes earache, or the patient may be hard of hearing, the nose stopping up, sometimes on both sides, but more frequently first one side and then the other, are symptoms. There is more or less sneezing. The patient breathes through the mouth and when arising in the morning the mouth and throat are dry and parched. The sleep is disturbed. The eyes frequently water and are somewhat red. There may or may not be a cough. The digestion is somewhat disturbed and occasionally vomiting is present.

Treatment—The first thing in treatment is cleanliness. Keep the child's nose clean and use a spray made by dissolving three tablets No. 3 in one-fourth cup of warm water. Place some of this solution in the atomizer found in the Cabinet and thoroughly spray the nose and throat four or five times a day. Keep the bowels well open by using No. 9 for young children and No. 16 for older ones. Start with one tablet at night and increase the dose if necessary. The patient should have one or two free easy movements each day. Do not let the child get wet feet or expose itself in any unnecessary way. In the summer have the child take as much outdoor exercise as possible and instruct in lung exercise, that is, have the child stand erect, shoulders well back and slowly fill the lungs to their utmost capacity with air, then forming the mouth as in making the letter, O, slowly blow out the breath. Repeat this ten or twelve times and repeat the whole thing two or three times a day. This a good exercise for any child and will very materially increase the lung capacity and is a safeguard to good health.

Epistaxis—Nose Bleed—Children frequently bleed from the nose and those who are kept indoors more frequently than those who have plenty of outdoor exercise. The bleeding may be started from a fall or blows, from picking the nose, or it may occur with nasal catarrh.

Bleeding from the nose is usually preceded by a sense of fullness in the head and the blood comes drop by drop from one nostril. The amount of blood lost is usually small.

Treatment—The child should have a general tonic treatment. A cold bath should be given every day, followed by brisk rubbing, and good nourishing food should be provided and plenty of outdoor exercise. Give one tablet No. 17 before each meal. The bleeding may be stopped by pressing the nose between the thumb and finger; by applying cold to the base of the nose and to the back of the neck; by snuffing lemon juice or strong alum or salt water up the nose. Any of these will usually stop the bleeding.

Spasmodic Croup—This disease is very frequent in childhood, but is rarely seen after the fourteenth year. Certain children have it more frequently than others, and well nourished children have it as often as those not so well nourished. Spasmodic croup may be due to taking cold, exposure, wet feet, attacks of indigestion, constipation and a number of other causes. The part affected is chiefly that part of the throat above the vocal cords; there is inflammation, dryness and the secretion of much mucus. To this is added a spasm of the muscles of the throat.

Symptoms and Signs—Some time before the attack begins there may be a discharge from the nose and a peculiar hoarse cough known to many mothers as a "croupy" cough. The child is nearly always perfectly well during the day, and when evening comes the hollow barking cough appears, at first quite infrequent and not at all severe. In the night, usually about midnight, the cough becomes more hoarse and severe and more frequent and breathing becomes difficult. This soon becomes more marked and the child awakens with the full force of the attack. The difficulty in breathing is very marked and there is a peculiar noise, especially on drawing in the breath. This noise is frequently so loud as to be easily heard in an adjoining room. When the child draws in the breath the abdomen will be sunken and the spaces between the ribs will appear to be drawn in. The fright of the child very frequently increases the spasm and makes breathing more difficult. There is very great distress; the voice is very hoarse, but is rarely lost altogether, and the breathing is slow and hard. The cough is strident, metallic and hoarse. The pulse is rapid, but there is seldom any fever. The lips and finger tips are often bluish, and the child sits up and struggles for breath while beads of sweat appear on the forehead.

The attack will last for three or four hours when it will gradually wear away and the child fall asleep. The next day the child will seem as well as ever. There may be another attack the second night and sometimes a third on the third night, but there are usually but one or two attacks. After a child has had one attack of croup it seems to be more liable to a second one, and children will often have attacks every week or every two weeks during the cold weather.

Treatment—The first thing to do is to relieve the spasm, in order that the child may breathe freely. To do this give at once three or four tablets No. 22. This will cause the child to vomit and relieve the spasm at once. Next place flannel wrung out of either very hot or very cold water over the throat. After the child has vomited give one-half tablet No. 13 every hour until two whole tablets have been given. If the child is constipated give an injection of warm water in which has been placed one-half teaspoonful of glycerine. During the day following the attack give one-half tablet No. 13 every three to four hours. To prevent a recurrence of croup give the child plenty of fresh air each day and give a cold sponge bath followed by a good rubbing with a moderately rough towel. The throat should be carefully looked after by a throat and nose specialist in order that anything in the way of adenoid growths, enlarged tonsils or a too long hanging palate may be removed, and if the child's general condition is poor give one tablet No. 17 before each meal and continue this for from three to six weeks.

Membranous Croup—Membranous croup is sometimes called laryngeal diphtheria, and it is many times very difficult to distinguish between membranous croup and true diphtheria.

Symptoms and Signs—Membranous croup begins very much the same as spasmodic croup, yet has not quite the abruptness nor is the progress of the disease so rapid. There is a hoarse, strident, metallic cough and hoarse voice, which gradually increases. There is a slight temperature, ranging from 99° to 101°. The pulse is rapid, but strong, and not weak as in spasmodic croup. It usually requires twenty-four hours to certainly name membranous croup. In this disease the child is usually taken sick in the morning and gradually grows worse all day. By

night the voice which was hoarse in the morning may be entirely lost. The breathing is quite easy at first, but becomes more and more difficult; spasms occur in the throat which make breathing very shallow and extremely difficult, but as the spasm passes off the breathing again becomes easier. During the second day the disease becomes well developed. The face wears an anxious look and is pale. The breathing is loud and rasping; the nose dilates with each breath. Each time the patient draws a breath the abdomen draws in, the spaces between the ribs appear sunken and hollows appear about the collar bones. The patient is very restless and at times struggles for air. The pulse is weaker than on the first day of the disease. The lips and finger ends are somewhat blue. The skin is clammy. By placing the ear over the lungs, rough rasping sounds can be heard when the child breathes. Without treatment death will occur in from a day and a half to two days in young children and in older ones it is sometimes delayed as long as a week. Patients nearly always have convulsions just before death and the temperature rises to 104° or 106° . Lung fever is very liable to complicate this disease. About one-half of the patients sick with membranous croup die.

Treatment—When a case of membranous croup is even suspected the patient should be put in a room away from the children and the patient and nurse should stay there alone until the disease is over. The risk to other children is too great to allow the sick one to even be near the well ones. When membranous croup is suspected a physician should be called at once and the patient should receive an injection of antitoxine. This remedy acts as magic in cases of membranous croup but must be fresh and cannot be administered except by a physician. For the throat spasms, use three or four tablets of No. 22 as an emetic or allow the patient to inhale steam. The fumes of calomel are sometimes used with benefit but this must also be done under the direction of a physician. Hence the best advice in cases of membranous croup is to send for a doctor as soon as such a thing is even suspected and use the No. 22 and steam until he arrives.

Foreign Bodies—Should a child get a foreign substance in the "wind pipe," the first thing to be done is to turn the child head downward and then a stinging spat will start the child to

crying lustily and frequently expel the substance. If this does not succeed, try a succession of short jerks while the child's head is down. Should this fail send for a physician and instruct him to come prepared to operate if necessary.

The Lungs—The part of the body which contains the lungs is known as the thorax and is shaped like a cylinder during the childhood and in adult life is dome shaped. The walls of the thorax are very yielding and elastic, owing to the cartilage or partly formed bone which is found at the ends of the ribs and in parts of the breast bone. The real thickness of the walls of the thorax in infancy is relatively small, the greater part of the apparent thickness being made up of fat. At birth a child breathes about thirty-five times per minute; at one year of age, twenty-seven times per minute; at two years, twenty-five times per minute; at six years of age, twenty-two times per minute; at twelve years of age, twenty times per minute.

The breathing may be more rapid than this at almost any time and from no especial reason. In examining the lungs of a child, have the child in a warm room, then strip the child and look at its chest. Note the shape of the chest—whether it has the same look as in other babies; whether it has the natural cylindrical shape; whether the chest is deformed in any way; whether the two sides are exactly alike; whether the space between the ribs bulges out; whether the two sides expand and contract just alike during the act of breathing; whether there are any depressions about the walls of the thorax anywhere. Next sound the chest, and this is done by placing one finger flat on the baby's chest and gently tapping with a finger of the other hand. The normal sound is somewhat hollow, and one soon learns to notice the slightest variation from the normal. The sound over the heart is dull at all times, and it is easy to outline the size of the heart by sounding. Next, by placing the ear on the chest, both front and back, listen to the sounds. The sound of normal breathing may soon be learned by listening to the breathing of healthy children or grown persons. Compare the sounds on both sides and the sounds of different parts of the same side. The sounds heard in disease of the lungs will be taken up in the proper place. A few points to remember in the lung diseases of children are:

The muscular walls of the thorax are very thin in childhood, the bones are soft and pliable; the tendency of inflammation to spread is greater than in adults. Children breathe much faster than adults, and this is especially true in disease of the lungs. Fluid is often present about the lungs in lung diseases of children.

Acute Bronchitis—Acute catarrhal bronchitis is very common in childhood, and is more common in children who are not well nourished. It starts from a cold, from exposure, insufficient clothing in severe weather, wet feet, and other causes. Bronchitis is usually present with la grippe, measles, whooping cough, scarlet fever, typhoid fever and diphtheria. It may also be present in lung fever or pleurisy. This disease is an inflammation of the membrane which lines the bronchial tubes, and usually occurs in both lungs and only the larger bronchial tubes are affected.

Symptoms and Signs—In young children the mild form usually begins gradually with cold in the nose, some discharge from the nose and a light cough. The severe form begins in the same manner except that all symptoms are more severe. There is some fever. The child "raises" some material but does not often expectorate. Vomiting is occasionally found and this is usually caused by swallowing the mucus which is coughed up. The child breathes from thirty-five to fifty times a minute, and there is frequently a rattling sound caused by the discharge in the bronchial tubes and in the windpipe. The child is ordinarily not very sick, but is somewhat restless and may have diarrhea. On listening early in the disease, a dry sonorous rattle will be heard in the lungs; later the rattle sounds moist. The sickness lasts from five to seven days. Children frequently take relapses. Sometimes in the severe form the child is very ill, the breathing rapid and the cough persistent and very tight. The fever runs from 100° to as high as 104° in very severe cases. The child may wheeze when the breath is blown out. The result in most cases of catarrhal bronchitis is good and the patients recover in from one to two weeks. This disease might be mistaken for lung fever and the differences will be considered under lung fever. Acute catarrhal bronchitis in older children is not nearly so severe as that found in infants. In the mild form the patient is

never sick enough to go to bed. There is a cough which is worse at night and there is a sense of pressure about the breast bone. The cough is tight at first, but soon loosens up and the child raises a considerable amount of mucus. If the case is a severe one it may begin with chills, fever, headache, pains in the back and chest, and cough. The fever runs from 100° to 103°, and is usually the highest the first day. Occasionally a little blood is spit up. The patient will be sick in bed for from two to four days.

Treatment—Bronchitis is much more easily prevented than cured. The cough which troubles a child for the whole winter is nearly always from bronchitis. The measures which will prevent the child from taking cold are the best to follow in preventing bronchitis. Plenty of good warm clothing, wholesome food, frequent bathing, dry feet and avoiding exposure are important points to remember. A child suffering from bronchitis should be kept indoors, and if there is fever keep the child in bed while that lasts. To break up the fever give one tablet No. 11 every three hours to a child up to three years of age; from three to six years of age give one tablet No. 11 every two hours, and to all children over six years of age give one tablet No. 11 every hour. Continue this treatment until the fever is gone. At the very start of the disease give to a child up to six years of age one tablet No. 9 every hour until the bowels move freely; to a child six years of age and over give two tablets No. 4, and if the bowels do not move freely in four hours repeat the dose. Over the chest put either a mustard plaster or a turpentine stupe. (For directions for making these see the chapter on Counter-Irritants, pp. 122-124.) Remove the plaster or stupe as soon as the skin is thoroughly reddened and cover the skin with dry flannel. Repeat the process three times a day. Thoroughly spray the nose and throat every two hours with the atomizer, using three tablets No. 3 dissolved in one-fourth cup of warm water. For the cough give one tablet No. 23 every three hours to a child five years of age and younger and one tablet No. 23 every two hours to a child over five years of age. Continue the use of this tablet until the cough entirely disappears.

Chronic Bronchitis—This is not common in children, but may follow an attack of acute bronchitis or may follow measles or whooping cough. The only symptom which is always present is the cough, and this many times very much resembles the cough of whooping cough. The cough is always worse at night and in the early morning, and the child raises a great deal of matter. The patient is thin, but is fairly healthy. There is no fever.

Treatment—Give one tablet No. 17 before each meal. The dose is the same for all ages. Give one tablet No. 23 every three hours to a child five years of age and younger and one tablet No. 23 every two hours to a child over five years of age. Keep the bowels well open by using No. 9 for children under six years of age and by using No. 16 for children over six years of age. Take good care of the child in every way and the recovery is only a matter of time.

Sometimes a cough occurs during childhood for which there seems to be no especial cause, it is usually worse at night and is not severe. This cough is called nervous cough and it is treated by keeping the bowels well open as directed above, and by giving one tablet No. 13 at bedtime. The dose is the same for all ages.

Pneumonia—Lung Fever—No disease which occurs during childhood is fraught with more danger to life, if neglected, than lung fever. The disease is frequently seen in children, and is also found in connection with other diseases. There are two general forms of lung fever, one in which the disease is confined to the lung proper and the other in which the bronchial tubes are also involved. In lung fever the lungs become filled with a discharge which many times contains one or more of the component parts of the blood. When lung fever is present a germ known as the pneumococcus, is found. There may also be other germs present, hence it may be said that lung fever is a germ disease and the germs find their way into the lungs from the mouth, the nose or the throat. Lung fever is more common in winter than in summer. It attacks weak children quicker than those of robust health. Exposure of any sort may produce lung fever. The disease may be only in the larger bronchial tubes or it may involve all of the bronchial tubes and the lung tissue itself.

Lung fever nearly always occurs in both lungs, although it is sometimes found in one alone. In lung fever death may occur at any stage of the disease or the fever may be broken up and the patient recover. Pleurisy, or an inflammation of the covering of the lungs, is found in nearly every severe case of lung fever.

Symptoms and Signs—Cases of lung fever present a very great variety of symptoms and signs, and it will be the endeavor to give them in a way that will be the most comprehensive and the most easy to grasp. A symptom that is always present is high fever, and this may vary from 102° to as high as 107° in very serious cases. The patient is quite sick from the very start; vomiting is often present; the child is dull, complains of headache, does not eat, seems weak, and frequently goes to bed of its own accord. The pulse is rapid and the breathing quick. There is a cough which varies very widely in its character. Moist rattling sounds are heard in the lungs and later in the disease small spots where no breathing sound at all is heard can be found. Sounding the chest gives a very hollow sound, which later may become dull and dead, much as the normal sound over the heart. The cough is in some cases severe and constant, and in most cases there is a disposition to suppress the cough on account of pain. In small children there is no expectoration; in older ones the material expectorated is brownish-red at first and toward the close of the disease is more yellow and very abundant. Pain is frequently complained of in all parts of the body. In a healthy child the pulse beats four times to one breath while in lung fever there will frequently be a breath to every two heart beats. The breathing is short and jerky. Many times there is a slight moan when the breath is blown out. At the beginning of the disease the pulse is full and strong and very rapid; later, although just as rapid, it becomes weak and small. The fever rises rapidly at the beginning of the disease and varies from one to two degrees each day until the end of the disease, when it falls rapidly to normal, nearly always falling in from twelve to eighteen hours. When the breath is drawn in all the soft parts of the chest seem to be sunken and the nose dilates. The lips and finger tips may become blue, but when this occurs the case is one of severity and heroic measures should be taken at once. Nervous symp-

toms, such as twitching of the limbs, and tossing the arms are common. In severe cases the child often becomes so near unconscious as to be unable to recognize its nurse or parents. The urine is scanty, has an odor and is highly colored. Patients should be watched most carefully from the fifth to the eighth day, as that time is the most critical. When the fever is high the child is often delirious or "out of its head;" this is especially so during the night. The face is flushed and the lips often crack and get quite sore. The appetite is lost and it is difficult to get the child to take any nourishment. If much food is taken the stools show undigested material. The skin is dry and hot.

A child taken suddenly sick with high fever, rapid pulse and breathing, and a cough, should always make one think of lung fever. If in addition to these the patient is found to be very weak and sick, with blue lips and finger nails and a general blue tinge to the skin, it is almost certain that the disease is lung fever. At first it is very difficult to tell lung fever from severe bronchitis, yet there is not the continued fever in bronchitis, hence after twenty-four hours of sickness it is easy to distinguish between the diseases. Lung fever may be sometimes confounded with malarial fever. Two points of difference are to be noted. In malaria there is high fever one day and the next day there may be no fever at all, while in lung fever the high fever of one day may be less on the second, but is never entirely absent. The second point is, the fever of lung fever is not affected by quinine, while in malarial fever quinine acts as a specific. Do not forget the low moan which is often heard upon blowing out the breath in patients sick with lung fever. The mistake is more often made of confounding lung fever with some other disease than that of mistaking some other disease for lung fever.

In the beginning, scarlet fever, quinsy and cholera infantum may all somewhat resemble lung fever. In scarlet fever, however, is found the sore throat, and on the second day the characteristic eruption of the skin. In quinsy the signs are all located in the throat, while in cholera infantum there is not the high fever and severe illness which is found in lung fever. Lung fever is always a dangerous disease, and at any point during the course of the disease the patient may take a sudden turn for the worse and die, or on the other hand the fever may be broken at

any point during the disease and the patient make a comparatively rapid recovery. Lung fever is especially dangerous when it occurs in connection with measles, diphtheria, or whooping cough. No case is hopeless as long as food is taken and retained well and the stools show that it is being taken up by the body, no matter how grave other signs may be, but persistent vomiting, diarrhea, or severe indigestion make the chance for life very doubtful, even when other symptoms are favorable.

Treatment—Every case of bronchitis in childhood should receive prompt and careful treatment as such a case is very liable to run into lung fever. A child suffering from lung fever has a part of the breathing space of the lungs cut off, hence one of the first things to do is to place the patient in a large airy room where there is plenty of fresh air. The child must be kept in bed. The child may have all the water it wants and must be fed on soft foods, toast, oatmeal, gruel, broths, cornstarch, soft eggs, oyster and various other soups, milk and some small amounts of fresh fruits; but do not give preserves, jellies, etc. Careful nursing is one-half the battle in lung fever and one of the most important things the nurse will have to do is to attend to poulticing the sick child. As soon as you have fully decided that the patient has lung fever and the high fever and rapid shallow breathing commence, begin poulticing. Make a jacket out of muslin that will fit the child front and back and lap over in either front or back and with notches in place of arm holes. Have it fit up well in the neck and down on the abdomen as far as the ribs go. Make another exactly like this and sew the edges together, making a sack. Then make another sack exactly like the first one. Next make a mush out of ground flaxseed or, if flaxseed cannot be had, use corn meal in which a number of slices of onion have been placed. Have this mush fairly thin and as hot as the child can bear; spread a thin layer in each jacket and place one jacket on the child and the other one where it may be kept hot by steam from boiling water. Allow the poultice to remain on the child until it begins to cool and be very careful never to allow it to grow cold; then take the fresh hot poultice jacket and place on the child below the poultice already on and draw the warm poultice up under the cool one, thus avoiding exposure to the air for

even one second. Place the cold poultice in the steaming apparatus and change as often as one grows cold. Keep the poulticing up day and night until the fever is entirely gone. When it is desired to stop poulticing, first carefully dry the skin, then cover with a layer of cotton and several layers of flannel. These may be gradually removed until but a single layer of flannel remains. This poulticing, if properly attended to, is one of the most effective treatments for lung fever, but to be of service the directions above given must be followed to the very letter. Give the patient a sponge bath with warm water twice a day, being careful not to get too near the poultice. After each bath rub the arms and legs with alcohol. To a child less than five years of age give one-half tablet No. 11 every two hours, and to a child over five years of age give one tablet No. 11 every two hours. Also give one tablet No. 13 every four hours. The dose is the same for all ages. Use the fever thermometer and keep a close record of the temperature night and morning, also a record of the pulse beats per minute taken twice a day. After the first day or two of the disease it is well to give something in the way of a stimulant, in order to keep up the strength of the heart and nerve centers. Whiskey and brandy are to be preferred, although wines may be given. When the heart seems to be weak or is the least bit irregular in its beats give one teaspoonful of whiskey or brandy, well diluted with water or milk, every two hours day and night. Should the patient sink very rapidly at any time during the disease give two or three times this amount for a few doses and do not dilute it at all. Allowing the patient to breathe the steam from boiling water in which a few drops of pure beechwood creosote has been placed will often loosen the cough and ease the heavy sensation felt in the chest. The feet should be kept warm, using a hot water bag for this purpose when necessary and the bowels kept open by using No. 9 for young children and by using No. 4 for older children. Finally, give the patient the best nursing possible, keep up the strength by careful feeding, do not be afraid to give stimulants if needed and do carefully and well all that may be done for the sick one and in the great majority of cases the outcome will be all that can be hoped for.

Pleurisy—Inflammation of the covering of the lungs—

This disease is found many times in childhood but usually occurs with or following other diseases of the lungs. With the inflammation of the covering of the lungs may occur a discharge of a watery substance or of pus. When this discharge occurs it accumulates between the lung covering and the walls of the chest. Pus is found more often than the watery fluid. Pleurisy very often follows such diseases as scarlet fever, measles, typhoid fever and la grippe. It also comes from exposure to cold, wet feet, etc., and more frequently follows lung fever than any other disease. There are three principal forms of pleurisy, the dry pleurisy, pleurisy with the watery fluid, and pleurisy with the formation of pus.

Symptoms and Signs of Dry Pleurisy—The symptoms and signs of dry pleurisy are sharp pain in one particular spot in the lungs which is made worse by drawing in a full breath, soreness upon pressure and troublesome hacking cough. On placing the ear on the spot where the pain is felt, a moist, crackling sound is heard—coughing does not change this sound. Dry pleurisy lasts from a few days to a week, and there are no signs except those given.

Treatment—Apply a mustard plaster (For directions as to making see Counter-Irritants, on pp. 122 and 222) over the sore place until a thorough redness of the skin is produced; then remove and cover with dry flannel. Repeat this one or twice every day. Give to a child five years old and younger one tablet No. 15 every three hours during the daytime; to a child over five years of age give one tablet No. 15 every two hours during the daytime. After the child has recovered from the disease the bowels will need some attention. Open them up freely by using one tablet No. 9 every two hours until a free movement takes place.

Symptoms and Signs of Water Pleurisy—In the pleurisy with a watery discharge; the signs are more those of a serious disease. There is some fever, headache, general sick feeling, and in fact all the signs of lung fever, but they are not nearly so severe with the exception of the pain, and that is more severe. The patient is not often sick enough to go to bed. In cases where fluid is

found in the chest it is the rule for the fluid to absorb slowly but completely and leave no marks behind. Looking at the patient it is noticed that on the side where fluid is suspected the movement of the chest walls is less than on the opposite side and the spaces between the ribs bulge out. On sounding the chest a remarkably dull sound is noticed; upon changing the position of the patient the position of this dull sound may also be changed.

Treatment—Keep the patient in bed and apply the mustard poultice as directed in dry pleurisy. Give to a child five years old and younger, one tablet No. 15 every three hours and to a child over five years of age, one tablet No. 15 every two hours. It is very important that the patient be kept quiet, as death sometimes occurs very suddenly from over exertion. It will be several months before the child will be entirely well again, and care must be taken during this entire period.

Symptoms and Signs of Purulent Pleurisy—The great majority of cases in which pus is found in the chest occur with or following lung fever, although this condition may be found following measles, scarlet fever and other diseases of this sort. A wound about the chest which cuts through into the lung covering will produce this disease at times, as will a broken rib. When the pus first commences to form it does so in the little pockets caused by the pleurisy adhesions, but as the pus continues to form these adhesions are broken down until in many cases the whole space between the lung covering and the ribs becomes filled with pus. When this trouble follows lung fever it may be that the temperature has been normal for a day when it will gradually rise again until a considerable amount of fever is present. There is also present very rapid breathing and a cough. After the pus has been in the chest for a day or two, the signs are: loss of flesh and a general ill-nourished look about the body; very pale skin; lack of blood in the vessels, shown by the pale lips and white clear skin, and the child is ill enough to stay in bed of its own free will. The breathing is rapid—from forty to seventy-five respirations per minute—and very often difficult. The fever ranges from 100° to 103°. The pulse is quite rapid but strong. In some of the chronic cases, the signs very much resemble those of consumption. Occasionally the feet swell. On looking at the

child the same things that are noted in cases in which other fluid is found in the chest are seen. When fluid of any sort is suspected call a physician, and he can with a hollow needle syringe explore and certainly detect the presence of fluid or pus. In fact, a case of this sort must be treated by a surgeon, and the sooner one is called the better. Pus in the chest can only be removed properly by an operation, and the best advice that can be given is to have the operation performed early in the disease.

The Heart and Blood Vessels in Infancy—Before a child is born circulation of the blood goes on after this manner: there is a vein which runs from the mother to the child through the "cord" and the pure blood from the mother passes through this vein to the child, passes through the liver and through the various parts of the body and into the right side of the heart. In the adult the blood passes from the right side of the heart to the lungs and thence back to the left side to be pumped to the various parts of the body. In the infant before birth, however, but very little blood is sent to the lungs, the most of it passing from the right to the left side of the heart through an opening known as the foramen ovale. At birth breathing commences and the blood passes from the right side of the heart to the lungs and back to the left side, the foramen ovale very soon closing entirely and the circulation being the same as that in the adult. In infancy the heart beats more rapidly than in adult life. The pulse rate is as follows: In a child six to twelve months, 100 to 115 per minute; in a child two to six years, 90 to 110 per minute; in a child seven to ten years, 75 to 95 per minute; in a child eleven to fourteen years, 72 to 90 per minute. Violent exercise will increase the heart beats from twenty-five to fifty beats per minute. The heart beats more frequently in females than in males and more frequently when standing up than when lying down quietly. A very rapid pulse in an infant may also be irregular and not mean anything. In an infant just born it requires twelve seconds for the blood to make the round of the circulation; in a child three years old fifteen seconds; in an adult twenty-two seconds. Very frequently children are born in which some part of the heart is not perfectly formed; the most common of these is the failure to close on the part of the opening between the right and left

heart, which has been spoken of as the foramen ovale. This sometimes closes with the exception of a very small opening, and in such a case no serious results need be anticipated. Other trouble may occur in the heart and in the blood vessels, but as the symptoms and signs of all such trouble are very much alike they will be given here, but the advice of a physician should be asked for in any such trouble. In all cases where the heart or circulation is affected before birth the baby will be blue—the lips, finger tips and the whole surface of the skin. The intensity of such blueness is a good index as to the gravity of the case. A symptom often noticed is the enlargement of the ends of the fingers and toes; the members will be of natural size to the end, and there will be noticed a decided enlargement. Other signs are bleeding from the nose, spitting of blood, difficult breathing dropsy and swelling of the lower limbs.

DISEASES OF THE GENITAL ORGANS.

Very often in the penis of the male child a very tight foreskin is found. When this condition is present the foreskin should be forcibly pushed back and the parts carefully washed. Then apply a drop of oil and draw the skin forward. Repeat this daily until the foreskin is thoroughly loosened up. Sometimes the opening in the foreskin is so small that it cannot be forced back. This condition is known as phimosis. Such a condition makes cleanliness impossible and may produce very serious trouble. The cure of this trouble is surgical and a physician should be called to attend to the little one. Occasionally a case is met with in which the opening of the urethra is not in its proper place, but as this is also a case for the surgeon it is only mentioned here. Sometimes the testicles do not descend into the scrotum properly, but in all cases of this sort allow nature to care for the trouble and do not interfere in any way. An inflammation of the foreskin sometimes occurs, and may be the result of uncleanness or of phimosis, previously mentioned. When this trouble occurs cleanse the parts thoroughly and bathe three or four times a day in a solution made by dissolving three tablets No.3 in a half pint of water. A few days of this treatment will effect a cure. An

inflammation of the urethra is sometimes seen. This is a rather serious condition and must be treated by a physician. Sometimes fluid will accumulate in the scrotum, but this will usually disappear in a few weeks or months; if not the use of iodide of potash, three grain doses three times a day will help the absorption.

In the female an inflammation of the private parts may occur. Careful cleansing and the use of a solution made by dissolving three tablets No. 3 in a half pint of water will be the only treatment necessary. Should this not effect a cure in a few days it is best to call the attention of a physician to the matter. When small sores or blisters occur about the parts cleanse thoroughly and dust twice a day with talcum powder.

Enuresis—Bed-wetting—Bed-wetting may be due to some malformation of the urinary apparatus, or it may occur in disease of the central nervous system, such as idiocy, meningitis, injuries to the spinal cord, and tumors of the brain. In cases produced in this manner there may also be lack of control of the bowel. The real bed-wetting of childhood, however, is not caused by any of the above. In early infancy the passage of urine is purely a reflex act. If a child is unable to control the discharge of urine after the third year treatment is necessary. An irritation of the nerves may cause bed-wetting, and this irritation may be in the nerve centers, in the bladder or in the urethra. Bed-wetting may occur in a very nervous child, or in one who is not well nourished, or it may be associated with epilepsy, headache, neuralgia and other nervous symptoms. A highly acid urine may also produce this trouble. Inflammation of the bladder or of the external organs may also produce this trouble. It is sometimes caused by pin-worms in the rectum. And in many cases habit seems to be the only reason we can find for the trouble. It occurs in both sexes and at all ages up to manhood and womanhood. Bed-wetting occurs in many cases every night, or it may occur only under some especial exciting cause. There is usually a complete emptying of the bladder and no dribbling.

Treatment—In the treatment of this disease first think of changes in the urinary organs which might cause the trouble, such as stone in the bladder, a narrow or adherent foreskin, inflammation of any part of the urinary tract and any spinal

affection. If these do not occur the case is an ordinary case of bed-wetting. In treatment do not allow the child to use much fluid in the evening; require the bladder to be emptied just before going to bed and have the child get up at least once during the night for the same purpose. Do not cover the child up too warmly, and try to keep it from sleeping on the back. The use of an electric battery is often of value. The child should have a thorough cold bath just before going to sleep. Be careful not to overtax the child's nervous system, either at home or at school, and early hours and plenty of sleep must be the rule. Punishment with the rod will not do any good and may be really harmful. Endeavor to strengthen the child's will power and call his pride to assist him. The medical treatment of these cases is, on the whole, very successful, but all remedies which can be used with any hope of effecting a cure are very active poisons and should be given only under the personal direction of the family physician.

Spasm of the Bladder—This sometimes occurs, and may be recognized by the frequent passing of water and pain upon passing water. The treatment consists in giving an abundance of water and two grains of citrate of potash in water every two hours.

Stone in the Bladder—This occurs in children quite as often as in adults, and the signs are: pain upon passing water, especially at the end of the act; there may be a sudden stoppage of the flow; straining is frequent; inability to hold the urine is often present, more marked during the daytime. The treatment of stone in the bladder is entirely surgical.

DISEASES OF THE NERVOUS SYSTEM.

Convulsions—Convulsions may be caused by some condition which affects the nutrition of the brain, or the lack of development of some of the nerve centers. Convulsions may be brought about from exhaustion, lack of the proper amount of blood, poor nourishment, any disturbance of digestion, any of the acute diseases, or worms. Children who inherit a nervous disposition

from their parents are more liable to convulsions than others. All sorts of brain diseases are liable to produce convulsions. They may also be produced by severe injuries. Difficult teething will also sometimes produce convulsions. The presence of undigested food in the stomach is often the exciting cause. Very frequently convulsions are associated with whooping cough, and more rarely with lung fever, malaria, scarlet fever and indigestion. Sometimes the attack is preceded by restlessness and slight twitching of the muscles, but more often the attack comes on very suddenly and without warning. The first thing noticed will be the pale face and fixed eyes; in a moment convulsive twitchings begin in the face and rapidly extend to all parts of the body. The head is thrown back, the hands are clenched and the baby becomes unconscious. The breathing is very feeble, the lips become blue, the forehead is clammy, rattling sounds are heard in the throat and the bladder or bowels may empty themselves. The attack lasts from a few minutes to nearly an hour, and the patient is left very weak and in a sort of stupor. Once in a great many times death occurs from one attack. One attack is very apt to be followed by others.

Treatment—When it is noticed that a young child is about to have a convulsion or is having a convulsion, plunge the child, with the exception of the head, into hot water; have the water so hot as to almost parboil the skin; place cloths wrung out of cool water on the head; allow the child to remain in the bath from one-half minute to two minutes. Remove from the bath, dry thoroughly and apply mustard plasters on the feet and legs and give one tablet No. 7 every two hours until four doses have been given. This treatment will, in all ordinary cases, stop the convulsions and prevent a recurrence, but should the attack persist and return often, seek the advice of a physician.

Epilepsy—Epilepsy is a disease in which convulsions of a peculiar sort occur at fairly regular intervals and in which there is complete loss of consciousness. In many of the cases of epilepsy there is a family history of epilepsy or insanity running through several generations. Epilepsy does not usually come on until the age of ten or twelve years has been reached, and frequently occurs in those who have had convulsions in infancy. The first

attack can many times be traced to such things as fright, great excitement, sunstroke or blows or falls upon the head. It also sometimes follows scarlet fever, typhoid fever or measles. Chronic constipation may also produce this disease. Some attacks of epilepsy are very light, and in these the unconsciousness is only momentary and they many times pass under the names of "spells," "dizziness," and "faint spells." The unconsciousness, however, and the return of the "spells" mark them as epilepsy.

Symptoms and Signs—There may be only a slight dropping of the head and a fixed stare for a moment. The mind is usually somewhat confused for a moment or two after such an attack, and the person may say or do strange things. Acts of violence, however, do not occur during such times. In the more severe cases the patient usually has an instant's warning, and then the attack comes on very suddenly. Persons so afflicted describe an endless number of sensations. The face is pale, the eyes rolled up and fixed and a spasm of the muscles immediately follows. There is a peculiar cry. The attack lasts from a few minutes to a half hour and the patient is somewhat dazed upon coming to and frequently complains of severe headache. When the disease first begins the attacks are a long distance apart but they become more frequent until the interval between the attacks will be from two to four weeks. Sometimes a number of attacks will follow each other closely and then will follow quite a length of time in which no attack will occur. The general health of persons suffering from epilepsy is usually normal.

Treatment—If a cause can be found remove it. Pay particular attention to the digestion, as the most favorable cases for recovery are those which are due to disordered digestion. Allow the patient a little meat once a day, but no potatoes or oatmeal, nor should tea, coffee or alcohol in any form be allowed. Milk may be given, and green vegetables with the exception of beans and peas; also all sorts of fresh fruits. The bowels should be carefully looked after. The patient must lead a regular, simple life, be out of doors as much as possible, and the nervous system should be kept as quiet as possible. Children suffering from epilepsy should not be allowed to attend school. The drugs which are of most value are the bromides of sodium and ammonium. To a child of

five years give five grains of sodium bromide every two hours and increase the dose one-half grain for every year of age until a dose of ten grains is reached. To stop the attack when it comes on, nothing is of more value than nitrate of amyl. This remedy comes in small glass beads, and one of these broken in a handkerchief and held to the nose of a patient just taken with a fit of epilepsy will often check or entirely stop the attack.

Chorea—Saint Vitus Dance—This is a nervous disease which is recognized by irregular, aimless movements of any or all of the voluntary muscles. These movements are somewhat spasmodic in character, and there is notable loss of power in the muscles affected. Along with this is noticed a very irritable mind. Saint Vitus Dance is most frequent between the ages of six and fifteen years. This disease is found more often in females than in males and is more frequent in the spring months than at any other season of the year. Rheumatism is very often found closely associated with Saint Vitus Dance. The disease may follow scarlet fever and other diseases of this sort. Saint Vitus Dance may also be caused by pin-worms, phimosis, delayed menstruation, and defects of the eyes. Many children inherit a tendency to have Saint Vitus Dance; fright may also cause the disease and some authors claim that it may be caused by lack of blood, nervous constitution or a severe disturbance of the nutrition of the child.

Symptoms and Signs—An attack of this sort comes on gradually; the child is usually thought to be nervous and it is noticed that he has difficulty in using the hands for close work, such as writing. He is continually dropping things and has much difficulty in feeding himself and in buttoning his clothes. Next will be noticed a stumbling gait and the child frequently falls and has difficulty in stepping up. Then commences the irregular, jerking spasmodic movements of the disease, which vary from the slightest twitching to almost constant motion. These movements are always increased by excitement or fatigue. In the more severe cases, the patient may be unable to help himself or even to walk. Patients suffering from Saint Vitus Dance are always fretful, irritable, easy to make laugh or cry and often very difficult to control. Sometimes the mind is so active and irritable as

to border on insanity. Stammering or stuttering is frequently seen. Heart trouble sometimes manifests itself, the appetite is poor, the sleep disturbed, headaches are frequent and all the symptoms of poor nutrition are present.

The disease usually lasts from one month to two and one-half months. Second attacks are very liable to occur and even third and fourth ones, usually just one year apart.

Treatment—A child suffering with Saint Vitus Dance should be taken out of school and should never be laughed at or punished on account of the peculiar movements. The diet should be carefully looked after. The patient should have a warm bath daily, followed by a brisk rubbing. Give two tablets of No. 24 every hour and every other day add one tablet to each dose until twelve tablets are given at each dose. Continue this until the stomach or bowels rebel, then stop for a few days and start again with two tablets every hour and work up in the same manner to twelve tablet doses. As soon as the movements stop discontinue the use of the medicine.

Headaches—Headaches occur in childhood from poorly ventilated rooms, from malaria, from constipation, from lack of proper nutrition, from various nervous disorders, from various eye diseases and from eye strain, from rheumatism, and from some other causes. The removal of the cause will effect a cure.

Stuttering and Stammering—In childhood a number of disorders of speech sometimes occur, such as stuttering, stammering and lisping. Careful training and insisting that the child speak slowly and pronounce but one syllable at a time and draw a breath before attempting to pronounce a second syllable will in time correct these defects.

Restless Sleep—Restless sleep is often seen in childhood, and is ordinarily due to hunger, indigestion resulting from over-feeding or improper feeding, trouble in teething, colic, earache, extreme nervousness, enlarged tonsils or growths in the back of the throat, lack of fresh air in the sleeping room, cold feet, violent or exciting play just before going to sleep, or to the bad habits of rocking or night feeding. The cause of disturbed sleep in childhood is usually easily discovered, and a removal of this cause is all that is necessary to produce natural sleep. Soothing

syrups should never be given to restless children, not even in bad cases of teething. Medicines are to be used only in cases of serious disease or in cases in which the child has frequent attacks of nightmare. In such cases the child awakes in a state of fright and says he has had a bad dream, or it may be he is found sitting up in bed in a state of terror and is afraid of some animal or monster which seems very near. In cases of this sort give five tablets No. 7 at bedtime. Have the child eat a very light supper and avoid all nervous strain of any and all sorts.

Cerebro-spinal Meningitis—Spotted Fever—This disease occurs many times as an epidemic, especially in winter and spring, and affects persons of all ages. In the great majority of cases no cause for the disease can be discovered. It sometimes follows or occurs with lung fever, scarlet fever, typhoid fever, la grippe, inflammation of the middle ear and abscess of the brain. Death may occur very early in this disease. Very few diseases are so irregular in their course as spotted fever.

Symptoms and Signs—Some cases begin with a day or two of general weakness and “dumpy” feeling, but in the majority of cases the disease begins suddenly with vomiting, convulsions, headache and high fever. The fever at the very start is from 102° to 105°. Severe headache is always present, the patient is very sick, there is pain in the back of the neck and along the spine; the patient is abnormally sensitive to pain; there is constipation, and the muscles of the neck are stiff. Later on nervous symptoms develop. The patient is delirious, throws the hands and arms about the head; frequently there is a low distressed moan; the muscles twitch, and sometimes convulsions occur. Sometimes the patient is very dull and does not seem to notice anything and this passes on until the person is unconscious. The breathing is slow and often irregular. The pulse is weak. After about two days, the pupils of the eyes become very large. The disease lasts from one to two weeks. In over half of the cases, red spots from an inch to two inches in diameter will be found, after the second day of the disease, upon the back, along the spine and it is from this fact that the name, “spotted fever,” is given to the disease. When the patient gets well, there is often deatness or paralysis. The paralysis is usually of one side

of the body or of one arm or one leg. This paralysis will disappear in time; recovery is aided by the use of an electric battery. The mind may not be very clear for some time after recovering from the disease. Sometimes attacks of spotted fever are very severe and the patient will die in two or three days, and again the patient may be taken very severely ill and at the end of three or four days begin to improve and go on steadily to recovery. Between these two extremes are found all grades of severity. In nearly all severe cases the speech of the patient is interfered with in some manner. The skin is more or less blue in all cases. The tongue is coated. The large joints, and particularly the knees, often swell and are tender and painful. When death occurs it usually does so in less than a week. In the cases which recover it requires many weeks before the full health and strength is regained. All grades of mental disturbance are seen after an attack of spotted fever. In infants the disease is usually fatal, and when epidemics of the disease occur, from 30 to 75 per cent of the cases die.

Treatment—The patient should be fed upon milk, eggs, broths, soups and meat juices, and the food should be given every two to three hours day and night. The nape of the neck and along the spinal column should be sponged with hot water every hour or two and an ice cap or cold water should be applied to the head. Each day paint the nape of the neck and along the spinal column lightly with tincture of iodine. Keep the bowels well open by using, for children, No. 9, and for adults, No. 16, sufficient to produce a free movement from the bowels each day. Give one tablet No. 15 every three hours to a child five years of age and younger, one tablet No. 15 every two hours to a child over five years of age, and two tablets No. 25 every hour, to an adult. Place a tablespoonful of whiskey or brandy and a tablespoonful of water in a glass and give one teaspoonful of this every three hours. To an adult give one tablespoonful of whiskey or brandy, somewhat diluted, every three hours. If the patient will not eat, inject milk into the rectum every two or three hours.

Deafness—Children born deaf are often met with. Deafness may be produced by inflammation of the bones of the ear or inflammation of the covering of the bones about the side of the

head and ear; by the absence of all or any part of the middle ear; by the death of the nerve of hearing; by a diseased condition of the brain; by scarlet fever; by spotted fever, or it may follow any of the serious diseases of childhood.

Bone, Joint and Skin Diseases—A number of diseases of the bones, of the joints and of the skin occur in childhood. These conditions are hard to name and equally hard to treat, and many times the treatment requires frequent changing. It would be a practical impossibility to describe the various conditions which might arise in connection with diseases of this sort, and as it is the object of this book to give advice which may safely be followed in all cases, it is advised that in cases of bone, joint or skin diseases, excepting those described, the family physician be called.

Sweat Rash—This is a disease of the skin, seen in young infants, due to too much clothing. It is usually seen on the face and neck, often upon the side of the face upon which the infant sleeps or the side held against the mother while nursing. The disease is really an inflammation of the sweat glands, and shows as a red eruption of small pimples. Lessen the amount of clothing and dust often with talcum powder and the trouble will be cured in a short time.

Prickly Heat—In this disease the skin is covered with tiny bright red pimples, very close together, and on the top of the pimples will be a tiny sac of watery fluid. Scratching causes the pimples to rupture, and a large crusty sore is soon formed. The disease comes on very quickly, with intense itching and stinging. Very hot weather and too much clothing produce this disease. On those parts of the body where the rash does not appear there is much sweating. Prickly heat may be prevented by light clothing, frequent bathing and by dusting the body freely with talcum powder. During an attack open the bowels by using one tablet No. 9 every hour until they move freely. Give one teaspoonful sweet spirits of nitre to start a free action of the kidneys. Bathe the body and dust well with talcum powder. If the itching is intense, spirits of camphor will much relieve the irritation. The diet should be light and as nearly fluid as possible.

Seborrhea—This is a disease in which dirty, yellow, greasy crusts form upon the scalp. These crusts are easily recognized and should be first softened with oil and then removed by thoroughly washing the head with soap and water. Having removed the crusts, apply a salve made by taking one part of flowers of sulphur and eight parts of vaseline; mix thoroughly and rub in well. Repeat this treatment every few days until the disease is cured.

Eczema—Eczema is an inflammation of the skin and is the skin disease which is found most often in children, and in fact is the most frequent skin disease in all ages. A thin, delicate-skinned child or one in whom the glands of the skin are very active is more liable to be affected by eczema than a more hardy child. Children of rheumatic parents are very liable to have eczema. Heat, cold dry air, winds, the use of hard water or strong soaps in bathing, irritation of clothing, want of cleanliness and irritating discharges from the mucous surfaces may cause eczema. It many times accompanies the skin diseases which are caused by parasites, such as ring-worm. Eczema is also caused by the kidneys or bowels not being in proper working order, and may be caused by disturbances of digestion, especially intestinal indigestion.

The form of eczema which usually affects children is seen most often upon the face, usually upon the cheeks, forehead and scalp. It may occur upon any part of the body, and when found upon the trunk and extremities is usually in patches. When the disease begins small red pimples form, which run together, and there is then a moist red surface which is covered with a thick watery fluid. This fluid soon dries up and forms thick gummy crusts. There is intolerable itching, and from the scratching the surface becomes very tender and bleeds freely. The skin is often swollen. When the crusts are removed the flesh looks red and granular and the watery fluid spoken of appears. The intense itching causes loss of sleep and restlessness, and in this way affects the general health of the patient. It is easy to get some improvement in eczema, but it is difficult to bring about a complete cure. In more than half of the cases of eczema it is found either on the face or the scalp.

Treatment—In nearly all cases the treatment of eczema must be carried on for several months and to have the best results the nursing must be carefully looked after. It is important to discover the cause of eczema, as the cure of the disease may be much hastened by its removal. The patient should have a very plain diet and little or no fat, only a small amount of meat and in fact the food had best be milk, eggs, vegetables and fresh fruits. The kidneys should be kept working well by allowing the child to drink large amounts of water. Keep the bowels well open by giving No. 9. Give the tablets one hour apart and give enough to have a free movement from the bowels every day. If eczema occurs in a child who is thin and pale and not well nourished give one tablet No. 6 three times a day before meals. In washing the skin always wash with bran water or with milk and water. Loosen all crusts by soaking in sweet oil and then carefully remove them. After the crusts have been removed apply this ointment: Tincture of opium, one dram; salicylic acid, two drams; subnitrate of bismuth, three drams; common starch, three drams; vaseline sufficient to make a thick paste. Apply this to the raw surfaces and every other day thoroughly cleanse the parts and apply fresh ointment. If this does not produce an improvement in a few days, consult your family physician.

Boils—A boil is a circumscribed inflammation beginning in a hair follicle or sweat gland and extending to the surrounding tissues, ending usually in breaking and discharging pus. In infants small boils sometimes occur in great numbers, usually upon the scalp, face or shoulders; they are about the size of a pea or a little larger. In all cases where boils occur thoroughly cleanse the skin and with a sharp knife thoroughly cut open the boil, and any ordinary dressing will be all that is required to complete the cure.

Earache—Earache frequently occurs in children and is a very painful and annoying disorder. It is easily recognized and in most cases the child himself will tell you where the trouble is. The pain is very severe and the child will drop asleep only when completely exhausted from the crying. Treatment of these cases is comparatively easy. Lay the child down so that the ear which aches is uppermost, then, with the small ear syringe, fill the ear

with water as hot as the child will bear; allow the water to remain in the ear for a few seconds, then turn the child over and allow the water to run out; turn the child back and refill the ear with hot water. By beginning with water which is moderately warm and having it a little hotter each time, very hot water may be finally used. Continue this treatment until the pain ceases; then allow the ear to drain, thoroughly cover it and the side of the head with dry flannel which has been heated. Do not use sweet oil or laudanum in a child's ear.

SPECIFIC INFECTIOUS DISEASES.

In childhood a number of diseases occur which are known as infectious diseases, or diseases which may be taken from exposure to another person who is suffering from one of the diseases or exposure to the same conditions which produced the disease in another person. These diseases are placed in two groups. In the first group are scarlet fever, measles, German measles, chickenpox, whooping cough and mumps.

In the second group are diphtheria, typhoid fever and consumption.

All of the first group are contagious, but the exact poison occurring in these diseases is as yet unknown. In the second group the exact poison is well known and the manner in which this poison is given off from the body is well understood. The first group may be contracted by simply being near a person suffering from one of the diseases mentioned, while in the second group, the actual germ of the disease must be received into the body or in other words, strictly speaking, the second group are not contagious.

Scarlet Fever—This is an acute, self-limited contagious disease, and one attack usually protects the individual from another. From the time of exposure until the first sickness is felt is from two to six days; it requires from twelve to twenty-four hours for the disease to come on; the eruption lasts from four to six days, and then the skin "peels" off, requiring from three to six weeks for this process. This disease may be given to another at any time from the time the patient is taken sick to the end of the "peel-

ing off" stage, but the time when the disease is most liable to be given is during the time when the skin is scaling off. Deafness and kidney disease often follow scarlet fever. About one-half of the children who are exposed to this disease contract it, while the other half do not seem to be affected at all. Epidemics of scarlet fever are common, and are more frequent in fall and winter than in summer. If a child has been exposed to scarlet fever and a week passes without its taking the disease you may feel quite certain that it will not take the fever. It is doubtful whether the poison of scarlet fever can be carried by the breath, but it can surely be carried by the skin which peels off and by the urine, the matter from the bowels and the perspiration. The disease may be carried by anything from the room in which a patient has been lying sick with scarlet fever. Milk which has been in the sick room is a fine conveyor for the disease. Physicians may carry scarlet fever from one house to another, or in other words the disease may be carried by a third party. The discharge from the nose, ears, and throat carry the disease and must be looked upon as sources of contagion.

Symptoms and Signs—Scarlet fever usually begins abruptly with vomiting, sore throat and high fever. The vomiting is frequent and hard. The fever at the onset is from 102° to 105°. The child complains of sore throat, and on looking into the throat it is seen to be evenly red all over with the exception of the hard palate, and this is covered with little red points. If the disease occurs in summer, diarrhea is nearly always present at the beginning. The child is sick in proportion to the height of the fever. In from twelve to thirty hours after the child is first taken sick the eruption appears. It requires from twelve to twenty-four hours for the rash to fully develop and the rash then lasts from three to six or seven days. The rash first appears upon the neck and chest and soon covers the entire body. The rash is of a bright scarlet color and upon close examination is seen to be made up of very tiny points. Very often there is a peculiar whiteness about the mouth, and this makes a striking contrast to the rest of the face. In mild cases the rash may not appear upon the face at all, and may be faint upon the body. Should the rash be out well and suddenly disappear it means nothing except that the heart, which was very strong, has suddenly become weaker.

When the rash is faint a hot mustard bath will often bring it out clear. Shortly after the rash has faded the skin begins to peel off, and this peeling off of the skin is not found in any other infectious disease. The neck and chest show the first signs and the skin comes off in fine scales. From the neck and chest the scaling continues over the entire body, the hands and feet being the last to scale. The appearance of the fingers during this time is very characteristic. The finger tips peel first, and the new skin is pink and fresh looking, while that which has not yet scaled is dull gray and rough. Sometimes cases occur which are so mild that nothing is noticed until the peeling begins. Usually, however, even in mild cases, the child vomits and has sore throat at the beginning of the disease. It is very difficult to keep children with mild attacks in bed. The highest fever is when the eruption or rash is most prominent. The severe cases of scarlet fever begin with repeated vomiting or with convulsions and the rash very soon appears. By the third or fourth day, white patches appear on the tonsils and may appear on other parts of the throat; the lining of the mouth is very red, and little ulcers may be present which bleed easily; the glands in the neck swell; there is a discharge from the nose and mouth and the breath is bad. The fever is from 103° to 105° and continues steady for about a week. The fever lasts from three to four weeks. The pulse is rapid, weak and irregular. The appetite is gone and it is with difficulty that the child can be coaxed to take food. Relapses may occur in scarlet fever. Whenever the throat symptoms are severe swelling may occur in the neck. This may be so severe as to interfere with the breathing. This swelling of the neck, however, is rare. An inflammation of the ears is very frequent in connection with scarlet fever, and the younger the child the greater is the liability to ear trouble. Ear trouble occurs most often early in the second week of the disease, but may occur at any time. Usually but one ear is affected at a time. There may be only pain and a certain amount of deafness, but usually the ears discharge quite freely and the deafness is marked. Should ear trouble develop keep the throat and ears as clean as possible by swabbing the throat and by syringing the ears with warm water in which one or two tablets of No. 1 have been dissolved and as soon as the child is well enough it should be taken

to an ear specialist for treatment. Some trouble with the kidneys accompanies nearly every case of scarlet fever; this is very light in most cases, but may be very severe indeed. In the milder forms nothing is noticed with the exception of a small amount of albumen in the urine and the kidney trouble will correct itself as the patient recovers from the fever. The only treatment needed is a fluid diet. The most severe cases of kidney trouble develop about the third week of the fever, and in this case the urine is scanty and filled with small particles. This condition is really an acute form of Bright's disease, and may permanently damage the kidney. In nearly all cases in which this form of kidney disease occurs with or following scarlet fever there is swelling of the feet and ankles and puffiness under the eyes; there will be pain in the back and there may be vomiting. After this disease develops the patient usually becomes very pale. Upon boiling a small amount of the urine a portion of it will become solid after the same manner that boiling an egg will cause the white portion to become solid. In all cases which recover, the grave signs last from one to three weeks. There are two dangers when kidney disease occurs with scarlet fever; first, the danger of death during the active stage of the disease, and second, the danger of chronic Bright's disease developing. For treatment of this trouble keep the patient quiet, give an entirely fluid diet, allow large quantities of water, keep the bowels well open and give frequent baths in warm water. Test the urine often by boiling a small quantity and then adding a few drops of nitric acid. As long as any solid matter remains in the urine after testing in this manner, the treatment should be kept up. In scarlet fever the tongue is coated at first, then clears off and little red bunches are seen, giving an appearance known as strawberry tongue.

The signs by which we may recognize scarlet fever are: the patient is taken very suddenly sick with a chill, vomiting, high fever, a red and inflamed throat. Within twenty-four hours following this the rash appears. This rash may be separated from other rashes by a simple experiment. On any place on the body where the rash occurs draw the finger nail along the skin with moderate pressure; if the rash is that of scarlet fever a white line will be seen where the finger nail

touched the skin and this will not disappear for a few seconds. This white line is a thing peculiar to scarlet fever alone. Knowing that the child has been exposed to scarlet fever is a help in determining the disease. Even the mildest cases of scarlet fever should be kept entirely by themselves and away from other people for at least six weeks. Other children should be kept in a part of the house away from the sick one or, better still, be kept away from the house entirely, and after the sick one gets well it should not be allowed to sleep with other children for at least a month. The nurse and all others about the sick room should gargle the throat three times a day with a solution made by dissolving four tablets No. 3 in a cup of warm water. After the child is well enough to leave the sick room, the room and everything in it should be thoroughly disinfected. This is best done by closing the room tightly and burning a pound of sulphur in the room; allow the room to remain tightly closed for a day and then open all doors and windows for two days longer before anyone tries to live in the room. For more complete directions as to disinfecting, see the chapter on Disinfectants. There are three dangers of spreading the disease which we must guard against: first the patient, second the sick room and third the nurse.

Treatment—Put the child to bed and keep him there for at least a week after the fever has disappeared. Begin at once to feed upon a liquid diet entirely. This is important, as it may prevent serious kidney disease. During the eruption keep the body well oiled with camphorated oil; this will keep the skin soft and prevent itching. Give a sponge bath once a day after the rash has disappeared, using warm water. Keep the air in the sick room fresh. The food should be given at regular intervals and should consist of soups, broths, milk and beef juice. Do not give any solid food. To a child up to the age of five years give one tablet No. 13 every four hours; to a child between five and twelve years give one tablet No. 13 every three hours and above the age of twelve give one tablet No. 13 every two hours. Should the fever remain above 104° after giving this remedy for a day, give cold sponge baths every hour until the fever is reduced to 103° or 104° . Note the pulse—when it becomes rapid and feeble give one teaspoonful of whiskey or brandy well diluted with water

every two to three hours, but do not give stimulants of any sort unless the heart is rapid and weak. For the sore throat use four tablets No. 3 dissolved in a cup of warm water as a gargle. If the nose discharges freely this same solution may be used in the atomizer and the nose sprayed two or three times a day, and if there is difficulty in gargling, the throat may also be sprayed. When discharge from the ears occurs carefully syringe the ears two or three times a day with warm water in which one or two tablets of No. 1 have been dissolved. When the fever leaves and the patient begins to get better, gradually and carefully add solid foods to the diet and give one tablet No. 17 three times a day before meals. Finally, have the sick room as cheerful as possible; have everything about the patient clean and fresh and exercise careful judgment in the small details of nursing.

Measles—Measles is an epidemic contagious disease which occurs more frequently than any of the other fevers which are characterized by an eruption or rash. Very few people reach adult life without having had measles and one attack prevents another in nearly all cases. The disease is very highly contagious and very quickly spreads from the sick patient to all susceptible persons. From the time of exposure until the first sickness is felt is from ten to fourteen days; it requires from three to four days from the time the patient is first taken sick until the disease begins in earnest, and during this time the patient has an inflammation in the nose resembling that of a bad cold. The eruption closely follows and lasts from four to seven days. After this the skin scales off in little thin scales, and this process lasts from six to eight days. Only a short exposure is necessary to take measles, and close contact with a person affected with measles does not seem necessary. All children take measles very easily. Measles may be carried by clothing and by a third party.

Symptoms and Signs—Measles begins gradually. The child will seem to have a bad cold; the nose will run and there will be a slight amount of fever. These conditions will grow slowly worse until the eruption appears. Tears run from the eyes and bright light hurts the eyes; there is sneezing and a discharge from the nose. Quite often the patient complains of a moderately sore throat and the throat will be noticed to be somewhat

congested. On the third day small red spots about the size of a pinhead are often seen on the hard palate. There is always dullness, headache, pain in the back and drowsiness, but all of these, with the possible exception of drowsiness, may be found in other diseases. In from two to four days from the time the patient is taken sick the eruption appears. It first appears behind the ears, on the neck or on the forehead. The eruption appears as small, dark red spots, which are at first few, scattered and not elevated, very much resembling insect bites. In twenty-four hours the spots are more numerous and many of them are pointed and contain a little watery fluid in the top. In from one to three days the rash is fully out. When the eruption is fully out the face swells somewhat and it is sometimes difficult to recognize a well known face. The rash appears last upon the lower extremities, and by the time it is fully out on them it has usually begun to fade from the face. The rash lasts about four days. During the first two days of the eruption all symptoms are more severe and are at their worst when the rash is out best on the face. The skin burns and itches. The eyes are red, light hurts them and there is some discharge from the eyes, giving them a gummy feeling. There is some pain on swallowing. There is a cough which occurs often and is quite annoying. There is a varying amount of fever, ranging from 101° to 104° . As the rash fades the fever falls and very soon both rash and fever are gone. Almost at once the skin begins to come off in tiny scales. This lasts for from one to two weeks. Lung fever may occur with measles, and this makes a very serious case. Trouble with the ears occurs in some cases of measles, and when there is any running from the ears they should be thoroughly and carefully syringed every few hours with warm water in which two or three tablets of No. 1 have been dissolved. The eyes are somewhat sore in almost every case of measles, and sometimes very severe eye trouble is met with. When the eyes give any trouble whatever bathe them frequently in hot water in which four or five tablets of No. 1 have been dissolved. If either eye or ear trouble develops during measles the child should be taken to an eye and ear specialist as soon as well enough to leave home. There is cold in the head, at first slight, but steadily growing worse, and watery eyes; gradual rise of fever; the pinhead-like rash, appear-

ing first upon the neck and face, and slowly extending over the body. The red throat with pinhead spots on the hard palate should make the naming of the disease comparatively easy. When the rash is of a doubtful character a hot mustard bath will often bring the rash out clear and distinct. Deaths from measles are very few indeed. Never expose a delicate child to measles.

Treatment—Even in mild cases keep the child in bed and keep him fairly warm—warmer than in scarlet fever. The sick room should be a trifle darkened if the light hurts the patient's eyes at all. The food should be light, almost all fluid, and given at regular intervals. The itching and burning of the skin may be relieved by rubbing the skin thoroughly with No. 42. The cough may be controlled by giving one tablet of No. 26 every two to three hours. Give one tablet No. 13 every three hours, the dose is the same for all ages. As soon as the rash has left, the patient should have a bath every day and immediately after the bath be rubbed with No. 41. As the patient gets well, carefully look after the eyes. If there is a cough continue the use of No. 26. If the patient seems weak, give one tablet No. 17 before each meal and continue this for from three to six weeks. Finally, do not imagine that measles do not need any care; put the patient to bed and keep him there until well, and remember that, although the patient may not seem to be very sick, serious complications might arise.

German Measles—German measles is rarely seen unless an epidemic occurs. The disease is contagious. Having had ordinary measles will not prevent one from having German measles, nor will German measles prevent an attack of measles. German measles occurs but once in the same person. It is not so contagious as measles or scarlet fever. It requires from one to three weeks from the time a person is exposed until the first sickness is felt. The rash appears almost as soon as the patient is taken sick, and is, in fact, the first thing noticed in many cases. Frequently a child goes to bed well and awakes in the morning covered with a rash. The rash generally appears first on the face and rapidly spreads to the rest of the body. The rash fully develops in less than one day. On the face the rash appears as large irregular blotches of red color; on the body the spots vary from the size of

a pinhead to that of a pea. Sometimes the rash is elevated enough to give the skin a "shotty" feeling. It lasts from one to three days, and then fades. The fever is low, from 100° to 102°. The patient does not usually seem to be very sick, and were it not for the eruption the child would not be thought of as sick. There is very little itching of the skin. One of the things noticed in German measles is the fact that no after-troubles arise, the patient recovers easily and quickly. It is difficult to distinguish German measles from light attacks of measles or scarlet fever, yet in measles there is always found the running from the nose and eyes, and this is absent in German measles. Low fever with an abundant rash should make the difference between scarlet fever and German measles noticeable.

Treatment—Take good care of the patient; give one tablet No. 11 every two hours as long as any fever is present; keep the bowels open by using No. 9 for small children and No. 16 for larger ones. Feed the patient carefully and no other treatment is needed.

Chickenpox—Chickenpox is an acute contagious disease in which there is an eruption on the skin of little bunches which very much resemble tiny boils, with the exception that there is no matter in the bunches, although a small amount of watery fluid may occur in some of them. The general symptoms are quite mild, and the child is usually not very sick. It is from fourteen to sixteen days from the time the person is exposed to the disease until he is taken sick.

Symptoms and Signs—In most cases the eruption is the first sign of the disease, although there may be slight fever and a sick feeling for a day before the attack begins. The eruption appears first upon the scalp, face or shoulders, as tiny, red, scattered pimples, and slowly spreads over the body. The first pimples have usually begun to dry up by the time the last ones appear, so that pimples of all stages may be noticed quite close together, and this is one of the characteristic signs of the disease. The pimples are very small at first, but gradually increase in size and the skin surrounding them for a quarter- or half-inch is quite red. Most of the pimples have little blisters on the top. When the drying up process begins it usually begins in the center, or where

the little blister is, and this makes a little depression in the center of the pimple. The red ring around the pimple fades as the pimple dries up. As soon as the pimples dry up crusts form and these fall off in from one to three weeks. In most cases no mark is left, but after very severe cases, where the whole thickness of the skin has been involved, scars are left and the skin is sometimes pitted. Such marks are most likely to appear on the face. The fever is from 100° to 102° ; the pulse is a very little faster than usual and the child is somewhat sick.

Treatment—Keep the child out of school and in the house; do not needlessly expose other children. The itching may be relieved by a sponge bath with a solution of four or five tablets of No. 3. Prevent scratching as much as possible. Keep the bowels open by using No. 9 for young children and No. 16 for older ones. Should the fever reach 102° or above, give one tablet No. 11 every two hours until the fever drops to 101° . The dose is the same for all ages.

Whooping Cough—This is an epidemic contagious disease and usually occurs but once in an individual. Whooping cough very often proves fatal in very young children. Lung fever and convulsions are often found associated with whooping cough. In whooping cough the symptoms are of two kinds—catarrhal and nervous. The catarrhal affects the mucous membrane of the mouth, throat and lungs. The most prominent nervous sign is a peculiar spasmodic cough, from which the disease takes its name. Convulsions are frequent. It is very easy to catch whooping cough. In from one to two weeks from the time a person has been exposed the disease will begin to manifest itself.

Symptoms and Signs—For convenience the symptoms of whooping cough are divided into three stages—the catarrhal stage, the spasmodic stage and the stage of decline.

The Catarrhal Stage lasts about ten days. The symptoms at first are those of a moderately severe cold. After about a week the cough, instead of getting better, as in an ordinary cold, gradually grows worse and occurs in paroxysms. At first these are quite mild and only two or three occur in a day, but they gradually increase in frequency and severity until the typical whoop of the disease is heard, and this takes us to the second stage. During the first stage there may be some slight fever.

The Spasmodic Stage is the stage of paroxysms, and frequently at the beginning of a paroxysm the child will run to some convenient place for support during the attack. The paroxysm begins with a number of explosive coughs, so near together that the child cannot draw a breath between them; the face becomes red or purple and sometimes almost black; the blood vessels stand out on the face and forehead; tears run from the eyes and they seem almost to start from their sockets; then follows a long drawn in breath which produces the crow-like sound called a whoop; then follows another succession of coughs and another whoop. The paroxysm lasts from one to three minutes, and the child may whoop a half dozen times during this time. The last cough usually brings up an amount of stringy mucus. With the paroxysms vomiting and nose bleed often occur, and if food has been taken just before the paroxysm came on, vomiting is sure to follow. After the paroxysm has passed, the child is often almost too weak to stand alone; there is much perspiration. Some paroxysms are not so severe as that described, but usually from five to forty severe ones occur during twenty-four hours. Ordinarily the spasmodic stage lasts about four weeks, but it may be much longer than this.

The Stage of Decline—Gradually the severity of the paroxysm ceases and the whoop stops. The cough resembles more and more the cough of an ordinary cold, then stops altogether. The third stage may last from a few weeks to all winter.

Treatment—The child should have plenty of fresh air during the entire attack, and it is a fact worth noting that there are fewer paroxysms when a child is out of doors. Vomiting and indigestion are so frequent that feeding is difficult. When a meal is vomited up shortly after it has been given another meal should be supplied. The diet should be as nearly fluid as possible. The nose and throat should be sprayed often with a solution made by dissolving four tablets of No. 3 in a cup of warm water. Use the atomizer found in the Cabinet for spraying. A few drops of pure creosote placed in a quart of water and the whole placed in a tea kettle and boiled, allowing the child to inhale the steam, will be of much benefit.

Give to a child five years old or younger one tablet No. 13 every three hours, and to a person over five years of age, one tab-

let No. 13 every two hours. Continue this during the whole course of the disease. Also give one tablet No. 27 three times a day before meals.

Mumps—Mumps is a contagious disease, the principal sign of which is the swelling of the glands which produce saliva. The average time from time of exposure to the first sick feeling is twenty days, but this may vary.

Symptoms and Signs—In mild cases the swelling of the jaw is the first thing that is noticed. In more severe cases the disease begins with headache, vomiting, pains in the back and limbs and fever. The fever is from 101° to 103° . There is usually pain in the jaws, which is worse when the jaw is moved or when acid substances are taken into the mouth, hence the home test for mumps is to give the suspected child a pickle, and if it causes sharp pain in the jaw the case is at once named mumps. The swelling begins just below the ear and usually on one side at a time, but frequently there is no swelling on the other side at all. The swelling is at its height on the second or third day, remains stationary for two or three days and then gradually goes away. The mouth is often very dry, and the child will complain of this. The patient is not usually very sick, and yet there is usually but little difficulty in keeping the child quiet.

In children complications are rare, but it is no uncommon thing for men to have a swollen testicle, which may be quite painful, but usually subsides in a few days; with this there is usually more fever. In females swelling of the breasts may occur.

Treatment—Keep the patient in the house; give a light diet; keep the mouth clean by rinsing often with a solution made by dissolving three tablets No. 3 in a cup of warm water. Keep the bowels well open by using No. 9 for young children and No. 16 for older persons. Be careful with your patient and no further treatment is necessary.

Diphtheria—Diphtheria is an acute, contagious disease caused by a known germ. Its characteristic is the formation of false membrane over the mucous membrane of the throat and nose. In very mild cases the patient is not very sick, while in more severe cases he is very sick; the heart is weak and the skin pale and bloodless.

In most large cities diphtheria may be found at almost any time. Catching the disease from exposure to another person is the most common method of taking diphtheria; a person may take diphtheria from anything which has been near a person who has suffered with the disease. A person with a weak throat will take diphtheria sooner than another. It only requires from one to two days after a person has been exposed for the disease to come upon him. Diphtheria may attack a second time, but such cases are rare.

Symptoms and Signs—Diphtheria is divided into three groups, according to the severity of the disease: First, the mild cases, in which there is little or no membrane, and in these cases the patients soon recover; second, the severe cases, in which there is a marked membrane and in which there are evidences of poisoning from the diphtheria germs; third, the mixed cases, where there is marked poisoning from the germs of the disease.

In the first group when there is an epidemic of diphtheria cases are frequently seen which are so mild that they seem only to have a bad cold, and yet could a microscope be used numbers of germs of diphtheria could be found in the discharge from the nose or throat. In these cases there is usually a free irritating discharge from the nose; this is occasionally streaked with blood and may continue for weeks. There is a slight amount of fever, but the patient is not very sick as a rule.

In the second group the membrane is usually found only in the throat, and often only upon the tonsils. There is sore throat at the beginning and fever from 101° to 103° . The patient may or may not be sick enough to go to bed. The throat first shows red, and later a gray film forms, then a small spot of white deposit appears on the tonsils, and this rapidly spreads and covers the whole tonsil. This membrane is tough and sticks quite tight, being removed with difficulty with a swab, and when removed leaves a bleeding surface.

In the third group the disease begins gradually; there is a slight indisposition for a day or two and some soreness of the throat. The symptoms increase for four or five days, with headache, vomiting, chills, and a fever from 102° to 104° . The membrane is the same as that already described except it may now cover the whole throat and even extend into the nose.

In very severe cases this membrane grows very rapidly. There is a free discharge from both the nose and the mouth, and the breathing through the nose is interfered with. The breathing is noisy, the tongue dry and the lips are cracked and bleed easily. Bleeding from the nose is frequent and both nostrils are plugged up by the swelling and the membrane. There is an odor to the discharge. About the second week, when fluids are given to the patient, they will run out of the nose again. The condition of the nose and throat gives the patient much annoyance. The patient becomes very ill and weak and shows evidence of being poisoned by the disease; the pulse is feeble and rapid and a sort of stupor comes over him, and when this is present he is very restless. Vomiting and diarrhea are liable to be present, and delirium is frequent. Sometimes the disease extends down to the vocal cords, and in such a case there is at first hoarseness, and later there may be complete loss of the voice. By the sixth or seventh day the disease has usually reached its height, and it then remains stationary for two or three days, the membrane then comes away gradually, leaving behind a bright red surface which bleeds easily. As soon as the membrane disappears the patient begins to improve, but it requires a long time to regain health. The heart is slow to regain its normal strength, and the muscles remain weak for a long time. Once in a long time the membrane may remain for two or three weeks. When death occurs it usually does so when the membrane is the worst in the throat, and it may be due to the general weakness of the patient or to heart failure. Sudden failure of the heart may cause death even after the patient is nearly well. In diphtheria of any severity the pulse is always weak and rapid and the extremities are often cold. All cases of diphtheria must be regarded as serious and carefully watched, as it is impossible to tell when unfavorable signs may arise. A great many persons, both children and adults, die from diphtheria, but the cases vary so much that it is impossible to give an accurate percentage of deaths. Diphtheria is so serious a disease that every precaution should be taken to prevent its spread. Whenever an epidemic of diphtheria occurs in a neighborhood all schools should be closed and public funerals of persons who have died from the disease should never be allowed. When a case of diphtheria occurs the patient should

at once be placed in a room entirely away from the rest of the family; a room in the top of the house is the best, as it can be aired easily and is usually more quiet. The nurse should have a room next to that occupied by the patient and should remain away from the rest of the family. Use every precaution possible to prevent the spread of this dreadful disease, and every case of even suspected diphtheria should be isolated at once. No person except the nurse and the physician should be allowed in the room with the patient. The meals and everything else required by the patient and nurse should be left outside the door. This quarantine of the patient should continue for ten days after the membrane has entirely disappeared. Strangers should be kept entirely away from the house as long as the quarantine is kept up. The nurse should never eat food that has been in the sick room and should not sleep in the same room with the patient and should spray her throat and nose frequently with a solution made by dissolving six or eight tablets of No. 3 in a cup of warm water. The nurse should also take exercise out of doors every day. When a patient is sick with diphtheria everything should be removed from the room except actual necessities; all pictures, books, toys, cushions, etc., should be removed. All laundry from the sick room should be removed in a closed package and immediately boiled for at least one hour. All dishes should be boiled for fifteen or twenty minutes after taking them from the room. After the patient gets well and is removed, the room should be thoroughly disinfected; for directions as to this see the chapter on Disinfectants.

Treatment—Have plenty of fresh air in the sick room, and where possible have two rooms for the use of the patient—one for day use and one for night use. The room not in use can then be thoroughly aired. The patient must be kept in bed during the entire attack and for some time after he is really well enough to sit up; this is done that no sudden heart failure may occur from overexertion. The feeding should be carried out in accordance with the rules in the chapter on Diet in Disease. Sometimes the food comes back through the nose, and in such a case liquid food must be given through a tube which is passed well down the throat.

As soon as any depression is noticed or the heart's action is

weak, as shown by a rapid, weak pulse, begin the use of stimulants. Give to a child four years old and younger one teaspoonful of whiskey or brandy, well diluted with water, every three hours day and night; to a child from four to ten years of age give one teaspoonful as above every two hours; and to one above the age of ten years give from two to six teaspoonfuls at a dose and give the stimulant every two to three hours. Also for a child five years old and younger dissolve one tablet No. 28 in four teaspoonfuls of water, stir thoroughly and give one teaspoonful of the mixture every four hours; to a child from five to ten years of age give one teaspoonful of the above every three hours; to a child from ten to sixteen years of age give one-half tablet No. 28 every three hours; and to those above the age of sixteen give one tablet No. 28 every three hours. Every hour the nose and throat should be thoroughly sprayed with a solution made by dissolving four to eight tablets No. 3 in a cupful of water. Vary the strength according to the age of the patient. It is important that the nose and throat be kept clean in this manner. As the patient recovers, great care must be taken until both heart and muscles regain their normal strength, and during the convalescence give one tablet No. 17 three times a day before meals. The dose is the same for all ages.

The antitoxine treatment is used with very excellent results in cases of diphtheria, but should only be used by a physician; in fact, when diphtheria is suspected, send for a physician at once and carry out the treatment here outlined until he arrives. Then place the matter fully in his hands.

Typhoid Fever—Typhoid fever is an acute, infectious, contagious disease which is produced by a known germ. It is rare in infancy and frequent in childhood and adult life. The typhoid fever of childhood does not last so long as that in adults, nor does death occur so often. Typhoid fever is almost always caused by drinking water or milk which contains the germs of the disease. From the time a person receives the infection until the first illness is felt is from one to three weeks. Typhoid fever in young children is very rarely fatal. The disease is one which attacks both the large and small intestines and certain parts of the intestines are very liable to ulcerate badly during the course of the

disease. The spleen is also always affected. It may be said of typhoid fever that the disease comes on slowly, with nose bleed, dull headache, followed later on by stupor; red tongue, becoming dry, brown and cracked; tenderness over the abdomen, with diarrhea and gas in the intestines; a peculiar eruption upon the abdomen; the patient grows sick very rapidly after the disease is once fully established, and recovers very slowly.

Symptoms and Signs—The beginning of the disease may be very sudden, but the rule is that it comes on slowly with a feeling of slight illness, dizziness, headache, disordered digestion, disturbed sleep, nose bleed, depressed spirits and weakness of the muscles, followed by a chill. Sometimes, and particularly where malaria is common, the chill is followed at once by high fever. During the first week of typhoid fever there is present a fever which rises slowly each day; the pulse is frequent, but not rapid; the tongue is coated; there is some sickness felt in the stomach; diarrhea is noticed; there is headache, and about the seventh day a few reddish spots resembling flea bites may be found upon the abdomen, chest or back.

During the second week the symptoms noticed the first week grow worse; the fever is constant; the pulse is rapid and compressible; gas is noticed in the intestines; the abdomen is tender; gurgling is sometimes heard in the intestines; there is often delirium at night; the headache is constant and severe; there is a short cough; a substance gathers upon the teeth and lips and the diarrhea continues. During this week deafness may develop or there may be some trouble in seeing properly.

During the third week the character of the fever changes and instead of being constant it is now low in the morning and high at night. With this exception the symptoms remain about the same for the third week.

During the fourth week the fever is lower in the morning and does not rise at night, as during the third week; the pulse is less rapid and more compressible; the tongue gradually becomes clean; the size of the abdomen is less; the diarrhea ceases; and the patient becomes a convalescent, but very much reduced in flesh and will require careful nursing and feeding for several weeks.

The fever record of typhoid fever is very characteristic. On

the morning of the first day the fever will be very little above normal, and at night will be, say 100.5° ; the second morning 99.5° , evening 101.5° ; third morning 100.5° , evening 102.5° ; fourth morning 101.5° , evening 103.5° ; fifth morning 102.5° , evening 104.5° . From this time on to the end of the second week the evening temperature ranges from 103° to 105° , while the morning temperature is a degree or more lower. These figures are not exact but they are typical of the fluctuations of the fever. The principal intestinal symptom is diarrhea; if absent, the disease is very light. The stools are dark at first, but early in the second week they become fluid, ochre-yellow in color, may be streaked with blood, and have a very offensive odor. They number from three to fifteen in twenty-four hours. The eruption is nearly always found and consists of from five to twenty rose colored spots on the abdomen, chest or back—sometimes on the limbs—appearing in crops, lasting about five days and they disappear if the finger is pressed firmly against them. The nervous symptoms are very severe; headache early in the disease, dullness of the intellect soon following, passing into drowsiness and stupor, with very great illness and weakness; pronounced deafness; disturbance of sight; low, muttering delirium, always present in very severe cases. During convalescence the patients are very weak; the skin is pale and bloodless, and there is great nervousness; the heart is often easily excited; profuse night sweats occur, and in women the hair falls out.

There are complications with typhoid fever. Bleeding from the intestines is the most frequent, this blood, of course, showing in the stools. During bleeding the temperature usually falls considerably. The ulcers which occur in the intestines may eat through the intestine walls, and this makes an almost hopeless case. Pneumonia and bronchitis often occur with typhoid fever. Death occurs in about one case in twenty sick with typhoid fever.

Treatment—Put the patient to bed and keep him quiet. The room must be thoroughly ventilated. The diet should consist entirely of fluids and under no circumstances allow even a bite of solid food. For full list of fluid foods see the chapter on Diet in Disease. The discharges from the body should be immediately disinfected with carbolic acid and should be kept in a closed vessel for several hours before final disposal. If there are more

than three stools in twenty-four hours give one tablet No. 29 every four hours. The dose is the same for all ages. To reduce the fever give cold baths every two hours until the temperature is lowered and do not be afraid to have the bath cold—ice water is none too cold, and will do the patient good. Put the patient in a bath of lukewarm water and add ice or cold water until the temperature of the water is as low as can be had; allow the patient to remain in the bath for ten or fifteen minutes, then place in bed again. Give to a child of four years one tablet No. 13 every three hours; also give one tablet No. 27 every four hours. To a child four to twelve years, give one tablet No. 13 every two hours and one tablet No. 27 every four hours. To a person above the age of twelve, give one tablet No. 13 every two hours and one tablet No. 27 every two hours. When the gas in the intestines is troublesome, place a turpentine stupe over the abdomen—it is well to apply one a part of the time at any rate. For directions as to making, see Counter-Irritants, p. 122. To quench thirst give any cooling drink in moderation or allow the patient to hold small pieces of ice in the mouth. When the headache is severe apply cold to the head and a small mustard plaster to the back of the neck, and if this does not relieve, give one tablet No. 30 every hour until three or four tablets have been given. If the heart's action is feeble give stimulants as directed in the treatment of diphtheria. Finally, rely on cold sponge baths, cold baths, and cold packs for the principal reduction of fever. Remember that under no circumstances is solid food to be given until two weeks after the fever is gone. Give the meals of liquid food at regular intervals, take good care of the patient, follow directions carefully as to giving drugs and your patient will progress as rapidly as can be expected in this disease.

Syphilis—Syphilis is a disease which is often inherited, and no disease produces a greater variety of symptoms or more suffering. It is a disease which manifests itself in so many ways that it is not within the scope of this work to take up the subject fully. It is a disease in which the treatment must be varied so much that a physician is the only competent person to handle it. Therefore the disease is only mentioned, and the suggestion made that when any skin disease arises which cannot be understood or when

bone or blood disease occurs which cannot be named, consult a physician and the case will be safe in his hands.

Influenza or La Grippe—This is an infectious, contagious disease, due to a known germ, and occurs in epidemics. One attack does not protect from another, but rather seems to make the person more liable to a second attack.

Symptoms and Signs—The mild cases last from two days to a week. The disease comes on quickly with chills, pains in various parts of the body and sometimes vomiting. The fever is from 100° to 103° and the patient is usually sick enough to stay in bed. The tongue is coated and the appetite lost. The eyes water, the nose runs and there is a light persistent cough. It takes from three to four weeks to recover from an attack of this sort.

In the severe cases the fever is from 102° to 105°. The disease begins with severe headache, chill and vomiting, and the patient is decidedly sick. These cases much resemble lung fever, except that the signs in the lungs are not present. The fever remains high for about a week or ten days. Marked nervous symptoms are present, such as headache, pain in the eyes from light, stupor and sometimes even delirium. The tongue has a brown coating, the lips are dry and parched, the pulse is rapid and compressible. It requires many weeks for the full effects of such an attack to wear off. Sometimes there is quite a serious inflammation in the throat or the disease may go down to the lungs, in which case it will resemble lung fever more than ever, and in fact this latter disease may develop in connection with la grippe. Many of the signs of la grippe are very indefinite, and it is hard to make much out of them. La grippe often runs into other diseases, and the tendency is for it to hang on, and the patient will often be more or less ill for months; the cough especially is hard to get rid of.

Treatment—This consists in keeping the patient as comfortable as possible. Keep the bowels open by using No. 9 for children and No. 16 for adults. Keep the fever down by using one tablet No. 11 every two hours for children and by using one tablet No. 13 every two hours for adults. When the pulse is weak and rapid, give stimulants freely—one teaspoonful of whiskey or

brandy well diluted every three hours for children and one table-spoonful whiskey or brandy every two hours for adults. Give to children one tablet No. 27 three times a day before meals and to adults two tablets No. 27 three times a day before meals. At the very beginning of the disease put the patient to bed between blankets, place hot irons and hot water bottles about him and have him take a good sweat. Keep the headache down by the use of cold cloths on the head. Feed the patient on soft foods, give him plenty of good nursing and the recovery is only a question of time.

SURGERY.

It is not within the scope of this work to enter into the exhaustive details of general surgery nor to even mention surgical operations in general. There are, however, certain principles underlying the science and art of surgery, and rules and methods applicable in the management of many surgical conditions, which should be familiar subjects in every home. It is with these that we shall deal, and they may be conveniently classified under the subjects of Inflammation; Antiseptics and Surgical Dressings; Hemorrhage; Wounds; Burns, Scalds and Frostbite; and Carbuncles.

INFLAMMATION.

Inflammation may be defined as that succession of changes occurring in living animal tissues, produced by injuries or changes in conditions and surroundings, not sufficiently severe to cause loss of vitality, and which changes are accompanied by pain, redness, heat, swelling and disturbance of function. Taken singly none of these features of the inflammatory process can be said to express the morbid condition; they must all be present. Irritation is a primary necessity for inflammation. Under the stimulation of irritation the vital forces are quickened, the circulation increases, tissue change becomes more rapid. The blood vessels dilate and more blood is brought to the inflamed part. The fluid portion of the blood escapes, in part, into the surrounding tissues, and with it passes out many of the white blood corpuscles, and generally a few of the red ones. This passage of the fluids and white blood corpuscles from the blood vessels into the tissues produces the swelling, which is called oedema, or soft swelling, and which pits when pressed upon. In those cases of inflammation in which the swelling is hard and pits but little, if any, on pressure, there is an increase in the substance of

the tissues, produced by the augmented vital activity, and more rapid cell proliferation. Thus in some inflammatory processes in the glands of the neck we find a great increase in the amount of tissue which makes up the gland. In many instances this increase in tissue remains as a permanent new growth after the inflammation has subsided; more frequently the new growth disappears, either by resolution and absorption or the new tissue breaks down and, undergoing degenerative changes, forms pus. Where we find this latter process to be local and confined to a circumscribed area, it constitutes an abscess or boil. The pain which accompanies inflammation is caused by the irritation of the nerves about the seat of the disturbance. The irritation is chiefly produced by the pressure of the swelling, and hence the location of the inflammation has much to do with the degree of pain. Thus a swelling occurring in a confined space permits of a much greater degree of pressure, hence more intense pain. One of the most painful of all acute inflammations is a boil or abscess located in the external canal leading to the ear. Owing to the confinement of rigid bony walls the swelling soon fills the entire canal, and the highly sensitive nerves are subjected to great pressure. The rapid diminution of pain when an abscess has been opened, and the tension relieved, further points to the pressure of the swelling upon the nerves as the cause of the pain. The pain may, however, be of a reflex character, and the seat of pain located at some point distant from the injury or place of inflammation; thus in the case of hip joint disease the pain is felt about the knee, particularly back of the knee, and is generally absent from the hip joint. Tenderness, however, is always present at the seat of all inflammations, and is a much more reliable symptom than pain. The inflamed part is reddened and the temperature is elevated. These changes are produced by the greater flow of blood through the part. The excess of blood is most marked during the early stage of the process, when the locality will be bright red and hot. As the resistance to the flow of the blood becomes greater from the increased swelling, the amount of blood passing through the part is diminished and the temperature falls even to or below the normal. The color changes from red to pale or even a bluish tinge, or it may be mottled.

Varieties of Inflammation—These may be considered as simply steps in the process of inflammation due to variation in the resisting power of the tissues, the intensity of the cause and the duration of its action.

Inflammation may be divided into two general classes: First, non-suppurative, in which there are all the characteristics of inflammation, but without the breaking down of tissue and the formation of pus; second, suppurative, in which the process of inflammation passes through all the steps of the first class, but goes further, and the tissues break down, decomposition sets in, and pus is formed.

Included under the non-suppurative inflammations are serous inflammation, fibrinous inflammation and productive inflammation.

Serous Inflammation—Under slight cause the normal passage of fluid from the blood vessels into the tissues is increased in quantity and contains an excess of albumen, but very few of the white blood corpuscles or leucocytes escape. The best examples of this form of inflammation are chronic effusions into the cavities of the body—the pleura or joints. In more intense inflammations also, where the passage of the blood corpuscles has not been fully established, as in the early stages of the process, and when the cause, although severe, is rapid and transient in its action, as that caused by heat and blistering agents, the effusion is a clear transparent fluid containing but little albumen, and few if any blood corpuscles. With more severe and prolonged cause the percentage of albumen and white blood corpuscles increases, and there is a greater tendency to coagulation. These inflammations are called sero-fibrinous and lead up to the next class.

Fibrinous Inflammation—In this class we find still more albumen, fibrin and white blood corpuscles present in the exudate, and there is a much greater tendency to coagulate, and lymph forms on the inflamed surface or in the substance of the tissue. In an inflammation of the pleura or enveloping membrane of the lungs this lymph may form upon the opposing surfaces, and, blending together, constitute an adhesion or band of union between the two surfaces, which often becomes permanent, through the organization of the lymph into scar tissue. Lymph

formed in exactly the same way, is the temporary uniting medium, which seals the lips of a cut or wound when healing occurs, by first intention, and it is a similar lymph which "glazes" the surface of an open wound a few hours after it occurs. In these cases the fluid escapes from the open surface. A similar exudation occurs into the tissues as a result of chronic slight irritation, the fluid is apparently absorbed as fast as it escapes; the white blood corpuscles crowd the tissue and replace the parts which may have been destroyed. The white blood corpuscles are the repair forces which rebuild tissues which have been destroyed either by injury or disease, and all repair of tissue is accompanied by more or less inflammation. This function of building tissue brings us to the next class.

Productive Inflammation—In many cases of inflammatory process the white blood corpuscles crowd into the lymph exudate and convert it into a tissue of closely packed leucocytes. To supply this with nourishment small loops of blood vessels spring from the capillaries of the inflamed tissue and penetrate into the lymph in all directions; this is the process by which granulation tissue is formed. When this granulation tissue has a plentiful supply of blood for its nourishment, it then undergoes further development, and is finally changed into what is called connective tissue. This new connective tissue is called scar tissue. At first it is highly vascular—a recent scar is always redder than the surrounding parts; but the tendency to contract is characteristic of this new fibrous tissue, and as this contraction proceeds the vessels disappear, and the scar in the course of some weeks or months becomes white as compared with the surrounding parts. This contraction of scar tissue may produce the most serious results, such as the gravest deformities, so frequently seen after extensive burns. The tendency is most marked where the tissues are loose, as about the mouth or eyelid. A scar is always a weak point in the system, and a tight scar is always irritable and very liable to break down. Granulation tissue frequently fails to develop into scar tissue. Continuance of excessive irritation or insufficient development of blood vessels or too close packing of the leucocytes in the tissues, thus preventing the entrance of the newly formed blood vessels into the mass, result in degen-

eration of the granulations. These broken down granulations form pus, and in such a case we are led to the second grand division of inflammations.

Suppurative Inflammation—This is a very common form. In it the exudate is the same as in the non-suppurative form, but no coagulation occurs and no lymph forms and vascularizes; even lymph which may have formed at earlier stages of the inflammation is destroyed when suppuration sets in. The various forms of non-suppurative inflammation often precede the suppurative, showing they are minor grades of the same process. Suppuration may be either acute or chronic. Either of these forms may appear in a circumscribed locality, forming an abscess, or its seat may be a free surface, such as the skin or some mucous membrane. In the latter case the process is called ulceration.

Acute suppuration is always due to the action upon the tissues affected of some forms of micro-organisms or bacteria. Some of these organisms become lodged at some point, and if the conditions are favorable for their growth they proceed to multiply and to give off the products of their growth. The secretions of these bacteria are poisonous to the tissues of the body and destroy all with which they come in contact. As soon as this process of destruction on the part of the bacteria begins, however, nature at once marshals her forces, the blood and its white blood corpuscles, to repel the invaders and repair damage. In a few hours a ring of leucocytes appears around the invaded area and becomes more and more dense; they infiltrate and displace the tissue which has become poisoned by the bacteria, and everywhere oppose the invasion of new tissue by the foreign organisms. Thus we see that the extent of tissue invaded by the suppuration is measured by the ability of the leucocytes to check and prevent the ravages of the bacteria. Usually they soon succeed in forming a dense wall of granulation tissue, everywhere intervening between them and the healthy tissue.

Taking for examination an acute abscess as it runs its course we can trace out the various steps described above as they occur, and finally when the leucocytes have gained the victory we find a central yellowish mass of dead tissue through which are scattered great numbers of both bacteria and leucocytes; surrounding

this will be a layer of tissue of a granular character which the leucocytes have built up. Gradually the central mass softens, and the covering tissues become thinner and finally "point" at the top of the elevation or in the line of the greatest pressure. If allowed to run the course without interference rupture of the surface tissues follows, and the softened contents of the central space are discharged. Upon the removal of the pressure upon the wall of granulation tissue new blood vessels at once begin to form and the process of converting granulation tissue into connective tissue suitable for repair or the formation of a scar begins.

ANTISEPTICS AND SURGICAL DRESSINGS.

Asepsis means cleanliness, not only freedom from visible uncleanness, but absolute freedom from any and all impurities, whether visible or invisible, poisonous chemical material or micro-organisms.

Antiseptics—This is a term applied to those agents which are used to bring about an aseptic condition; either preventing the entrance of septic material or organisms into the wound or destroying those already present, or producing a condition which is unfavorable to their development, and limiting their action.

Heat is the most certain in action of all antiseptics and applicable in most cases, where its action does not implicate living tissues. Thus for sterilizing dressings, instruments or solutions which are to be used about a wound, heat, either dry or moist, is most efficient. Instruments and solutions should be boiled for several minutes before use. Dressings, such as absorbent cotton, and other materials which are to come in contact with a wound, should be thoroughly sterilized by baking in a hot oven. Antiseptic solutions are used to cleanse a wound or the parts about a wound. They are made by the addition of certain chemical substances to water in varying proportions. In the absence of chemical substances thorough washing of the wound with pure water, which has been boiled, will be very efficient as a cleansing agent. The more common solutions used for disinfecting, are those of corrosive sublimate, carbolic acid, boric and salicylic acid, and alcohol. Corrosive sublimate is the most powerful of all, but is an

active poison and must be used with "great caution. The usual strength is one to five thousand; that is, one part of corrosive sublimate to five thousand of water. In the Cabinet will be found tablets of corrosive sublimate, No. 38. Two tablets dissolved in one quart of water makes a safe solution for general use about wounds, and for cleansing surfaces which are to be operated upon.

Another safe and non-irritating disinfectant solution is made by dissolving two tablets of No. 1 in one tablespoonful of water. This is especially useful about the eye, or as a wash for sore mouth. One part of carbolic acid added to ten parts of water makes a very efficient disinfectant, which is especially valuable in cleansing ulcers and open sores, as it has a stimulating effect upon the development of granulations. Alcohol is too irritating to be used on wounds unless diluted to a point where its efficiency as a germicide is so much reduced as to make it of little account. It is, however, a valuable fluid in which to immerse instruments to disinfect them before use.

For cleansing a wound or the parts about a wound pledgets of absorbent cotton should be used as they can be immediately thrown away when soiled. Sponges are liable to become foul, and be the conveyers of septic poison.

Surgical Dressings—The substances which come in contact with the wound must be absolutely free from any septic poison. The two substances most commonly used are gauze and absorbent cotton. The gauze consists of ordinary cheesecloth which has been thoroughly impregnated with some antiseptic material, as corrosive sublimate or iodoform. This dressing can be procured from the Home Remedy company. Absorbent cotton is a fine fibre cotton which has been subjected to chemical treatment which thoroughly removes all oil and foreign matter, and at the same time bleaches it pure white. Bandages are employed in surgery for the purpose of keeping the dressings in place and to compress and support portions of the body. The bandages supplied in the Cabinet are suitable for all ordinary dressings. Where the bandages are to be applied around the body, much wider ones may be made in the home from any light, strong muslin. The very narrow bandage will be found easier of application when used to dress wounds of the fingers or toes.

HEMORRHAGE.

Hemorrhage or bleeding is of three kinds, arterial, venous and capillary. Arterial hemorrhage occurs when an artery is opened; the blood, as it escapes, is bright red in color, and flows in jets corresponding to the beats of the heart. In venous hemorrhage the blood escapes from a vein, is dark in color and flows in a steady stream without acceleration caused by the heart beat. When only capillary vessels are opened, the blood has no distinct flow but is rather a general oozing over the entire surface of the wound. This is called capillary hemorrhage. Blood when removed from the vessels and exposed to the air, undergoes a peculiar change, known as coagulation or the formation of a blood clot. It is to this property of the blood that man is enabled to exist, and were it not present the slightest wound to a blood vessel would endanger life by the continual leakage of the blood.

All wounds are attended by more or less bleeding. Besides such, which may be described as traumatic, there may be hemorrhage caused by the rupture of blood vessels, either from disease of the vessel walls or of the surrounding parts. The amount of bleeding from a wound depends not only upon the kind and size of the cut vessels, but upon the manner in which they are divided. A wound cutting across an artery will occasion more severe hemorrhage than one cutting the artery lengthwise; an incised or clean cut wound more than a contused or lacerated, and a mere puncture than a completely severed artery. The arteries are always in a state of tension and when cut, the edges retract from each other and contract upon themselves, so lessening the caliber. The outlets are choked by the coagulating blood, and when there is much loss of blood fainting ensues, the action of the heart becomes slower, and there is less blood sent to the wounded part. In these three ways nature tries to arrest hemorrhage and moderate bleeding will soon be checked spontaneously when the blood is in normal condition. The application of heat or cold favors the formation of clots, and the arterial contraction and elevation of the injured part reduces the force of the blood sent to it; this will often be the only treatment required, but in severe cases, when blood is spurting from an artery, further measures

become necessary. The most important of these, and usually calling for no further apparatus than one's fingers, is pressure upon the bleeding point. There is no danger of serious hemorrhage from a wound to which a forcible digital pressure can be applied. If the vessel is too deep to be reached by the finger, the wound can be plugged up by a compress of absorbent cotton or gauze. To do this effectively, begin first with small pads of the material, having each one a little larger than the preceding, and pack the wound until the pile of compresses rises well above the surrounding tissues; then they should be secured by a tight bandage. This form of pressure is effective only when there is an underlying bony surface. If the artery is imbedded in a large fleshy muscle it becomes difficult if not impossible to control it. Wounds of the head and face, although they may bleed profusely, can almost always be controlled by direct pressure, as the skull forms a firm base upon which the pressure can be exerted.

Bending of a limb will sometimes be of aid in arresting hemorrhage. Put in the joint a firm roll of cotton or a small roll of bandage against which pressure will come when the limb is bent. In the case of bleeding from the palm of the hand, which will sometimes be profuse, have the patient clasp firmly a wad of cotton, and at the same time hold the hand high above the head. Another method of arresting hemorrhage, especially capillary or venous hemorrhage, is the application to the bleeding surface of astringents. These are called styptics. The most useful are the subsulphate or the perchloride of iron, alum and gallic acid. In case none of these are to be had the bleeding may often be stopped by covering the surface with wheat flour.

The most dangerous form of venous hemorrhage is that from rupture of large varicose veins. Pressure should be applied below the bleeding point, cold or heat applied and the limb elevated. When pressure is applied for the arrest of hemorrhage from an artery it should be placed on the side of the wound next to the heart, but in the case of venous hemorrhage always on the side away from the heart.

Where there is internal hemorrhage much benefit may often be derived by applying bandages around the limbs—on the arms just below the shoulder and on the limbs just below the groin. These bandages should be applied firmly enough to check the

return flow of venous blood, but not so tightly as to retard the arterial flow. By this means a very considerable quantity of blood may be retained in the extremities, and the blood pressure in the vessels of the trunk much lowered, thus giving the ruptured vessels a better chance to contract, and a clot to form.

There are some persons who are called "bleeders," who show an excessive tendency to hemorrhage, so that even a slight cut or scratch may be followed by severe hemorrhage which is difficult to control. The constitutional effects of severe hemorrhage are pallor, coldness of the extremities, clammy sweat, feeble or sighing respiration, small rapid pulse, restlessness and thirst, vertigo, dimness of vision, ringing in the ears, difficulty in articulation, followed by unconsciousness, slight convulsive movements and death, if the bleeding is not stopped before this.

The same effects follow internal hemorrhage, and may be the only evidence of its existence, though usually the blood will find an outlet somewhere.

Hemoptysis—Bleeding from the Lungs—In hemoptysis or bleeding from the lungs the blood is usually coughed up; it is bright red, and more or less frothy from admixture with air. It is always a serious symptom, though the quantity of blood lost in this way is rarely great. Blood supposed to be from the lungs may often come from ruptured vessels in the mouth or throat.

Hematemesis—Vomiting of Blood—The vomiting of blood is called hematemesis. This is not so serious as hemorrhage from the lungs. The patient is likely to have a sense of fullness and oppression in the pit of the stomach, and then to throw up, without much nausea, a large quantity of dark blood, mixed with food, but containing no air, acid in reaction and not coagulable.

Treatment for Hemoptysis and Hematemesis—In either case keep the patient quiet and cool and the head elevated. Give bits of ice, having them swallowed whole, if possible, and if the bleeding is repeated apply ice cold cloths externally. Give only fluid food, cold, and in small quantities. For hemorrhage from the bowels ice cold injections may be given, and in the same way solutions of oak bark or tannic acid may be used for their astringent

gent effect. Make cold applications over the abdomen. One tablet of No. 25 may be given and, if necessary, repeated in four hours. This form of hemorrhage may occur in typhoid fever, but is more common from internal hemorrhoids than any other cause.

Hematuria Blood in the Urine—The blood may come either from the kidneys, bladder or urethra. If it appears at the beginning of the act of passing water it is probably from the urethra, if at the end more likely from bladder or kidney.

Uterine Hemorrhage—In the case of uterine hemorrhage a vaginal douche of hot water or a hot solution of alum is especially called for. A half teaspoonful dose of fluid extract of ergot may be given, and repeated in half an hour. It may be necessary to plug the vagina. One way of doing this is to introduce as far as the mouth of the uterus a soft handkerchief, leaving the ends projecting. Then pack this with small pieces of dry sponge or absorbent cotton and tie the ends of the handkerchief together. The sponge is best, as it swells somewhat when saturated, making considerable pressure. After a sufficient time the plugs can be removed, one at a time, and finally the handkerchief. Another way is by means of the kite-tail tampon—a series of bunches of absorbent cotton tied at intervals of a couple of inches along one string. These are introduced, one at a time, till the vagina is distended, and the end of the string is left hanging externally. Upon pulling this, the plugs easily come out in succession.

Epistaxis—Nose Bleed—Bleeding from the nose demands some special attention. This may be either the result of an accident or a spontaneous outbreak. In the latter case it may be regarded as an effort of nature to relieve the congestion of the head, and need seldom cause any uneasiness. To check it, apply pressure upon the facial artery at the root of the nose, and apply cold to the forehead and back of the neck. The ordinary position taken, that of leaning over a basin, is the worst possible. Make the patient stand erect, throw back the head, and elevate the arms, while cold applications are being made to the nostrils. If the bleeding persists beyond a reasonable time, the nose may be syringed with a solution of salt one ounce, water one pint, ice cold. Avoid blowing the nose, and so disturbing the forming

clots. If all other means fail, it may be necessary to plug the nose; this proceeding, however, should only be attempted by a competent physician.

WOUNDS.

A wound is a sudden breach in one or more of the tissues of the body. Where the breach occurs in bone or cartilage, it is called a fracture. Wounds are accidental and operative. They may be classified under four leading heads as follows: incised, punctured, lacerated and contused. Any wound may become inoculated with a virus or venom; it is then a poisoned wound. An incised wound is made by a clean cut with a sharp instrument. A punctured wound is caused by a narrow instrument, which penetrates the tissues, but does not cut laterally. A lacerated wound is made by a dull instrument which tears the tissues. A contused wound is one in which the tissues are more bruised than separated. When a wound has occurred, the first effect is the separation of the tissues, and then follows hemorrhage. The wound fills with blood, and, if no large vessels are divided, the hemorrhage may cease spontaneously by coagulation; this occurs as a rule except in severe wounds, in which large vessels are severed. Very soon other changes follow; they are hyperaemia, or increase in the flow of blood to the injured part, redness, swelling, heat and pain, in the edges of the wound—all the phenomena of inflammation. No repair of tissue is possible without this inflammation. It may be mild, but it must of necessity exist. Inflammation produces cell-multiplication or proliferation, and a reunion of atom to atom, capillary to capillary, and the resumption of function cannot occur without cell proliferation.

If the edges of the wound are brought close together and no suppuration or poisoning of the wound occur, then we get healing or closure of the wound by first intention; but if the wound is left to gape open the space between the edges begins to be filled in a few days by granulation or newly formed tissue, and this granulation tissue continues to grow until it fills the wound to the level or above the level of the surrounding tissues. In some cases this granulation process becomes excessive, and the new

cells are formed more rapidly than they can become organized into permanent tissue, and this excess of newly formed cells constitutes "proud flesh" which unless removed prevents the closure of the wound and favors ulceration and sloughing. Often this excess of granulation tissue will, of itself, break down and slough; where it does not it should be removed either by the application of caustics, such as the solid stick of lunar caustic, or nitrate of silver or by the application of powdered burnt alum over its surface.

From what has been said, it can be readily seen that it is most desirable to procure union by first intention, and the two chief factors in bringing about this result are perfect cleanliness in and about the wound and perfect co-aptation or closure of the edges of the wound.

Treatment of Wounds—The first step in the treatment of wounds is to arrest the hemorrhage. Incised wounds bleed most freely, and are more dangerous in this particular than lacerated and contused wounds. In one the vessels are smoothly severed, in the other the ends are torn in shreds. Punctured wounds do not bleed seriously, unless some of the larger vessels are opened. The general rules for arrest of hemorrhage were given in the previous section and need not be repeated here.

After hemorrhage has ceased, the next step is the careful cleansing of the wound. In many cases dirt is obviously present and should be carefully removed, but often some form of septic material or poison, which cannot be seen, may gain entrance, and to provide against such a contingency antiseptics should be thoroughly used. A solution made by dissolving two tablets of No. 38 in a quart of water should be used to wash the wound. Use small pledgets of absorbent cotton dipped in the solution and after thoroughly wiping out the wound and washing the surrounding tissues, the saturated cotton should be held over the wound and squeezed out, allowing the solution to flow over the wound, and thoroughly flush it. After thoroughly cleansing the wound, and arresting the hemorrhage the question of how to close the wound so as to get the best adaptation of the edges of the wound, must be considered. In an incised wound of any considerable depth or extent, especially if in a location where the natural position and tension of the tissues will tend to make the

wound gape open, the only certain way of maintaining the edges of the wound in accurate apposition is by the proper insertion of sutures or stitches. In the case of superficial wounds, so located that there is but little tendency for the edges to gape, properly applied straps of adhesive or surgeon's plaster will often answer the purpose and give good results. The same is true in the case of wounds in which there is more or less laceration, and irregularity in the wound. In such cases much benefit may be obtained by the application of the straps of plaster in such a manner that it tends to draw the surrounding tissues towards the wound, and thus relieve the tension upon the wounded parts. In using stitches to close a wound, the curved needle will generally be found the most useful. The point of the needle should be inserted through the skin a quarter or half an inch from the edge of the wound, and carried down through the tissues towards the bottom of the wound and following this curve the point of the needle will be carried across the wound into the tissues of the opposite side, and finally out through the skin at a point corresponding to the point of the entrance upon the opposite side. The thread should then be drawn through, and tied. In tying the suture the friction knot should be used, that is, the threads are twice wrapped around each other before the second part of the knot is tied and the thread cut. This process is then repeated until a sufficient number of stitches have been placed to thoroughly close the wound and bring the edges smoothly into apposition. Care must be taken that the edges of the wound do not "pucker," and any shreds of tissue which are hanging partially loose in the wound should be cut away before the wound is closed, as they are very liable to slough if left in place. Care must also be taken not to draw the suture too tight or it will cause the edges of the wound to turn in upon themselves, and interfere with healing. The knot should be tied on one side of the wound, not directly over it. The tissues may often be advantageously supported, and tension upon the sutures relieved by the proper application of strips of adhesive plaster; or the same result may be obtained in the application of the bandage.

After the wound has been cleansed and closed the next step is the placing of protective dressing upon it. In most cases it will be sufficient to cover the wound fully with a thick layer of No.

40, and then apply a layer of absorbent cotton; and finally cover the whole with a bandage. In other cases where septic poisoning is suspected, medicated gauze should be employed in place of the ointment and absorbent cotton. Where the wound is clean cut, and free from poison, the primary dressing may often remain for three or four days before renewal, especially if the hemorrhage has been thoroughly arrested before the dressings are applied. The indications for changing the dressings are, undue heat and pain in the part, and the presence of any considerable swelling. Blood oozing slightly from the wound into the dressings will become hard and dry and thus make the dressings uncomfortable, and also tends to make them foul. Any dressing which shows evidence of soiling by seeping of the discharges from the wound should at once be removed and fresh dressings applied. In ordinary cuts, the stitches should remain in place for five or six days. They should not be left too long, for ulceration around the thread may occur or the stitches may cut through the tissues and leave a scar. In removing the stitches, a fine pointed pair of scissors should be used and the thread cut between the knot and the skin, when it may be easily withdrawn. It is often advisable to continue the support to the tissues by the adhesive straps for several days after the stitches have been removed, in order that the wound may not be again torn open.

If pus forms after a wound has been dressed in the manner above described, the dressings must be removed and all pus thoroughly removed, and the wound washed out with the antiseptic solution made by dissolving two tablets No. 38 in a quart of water and fresh dressings applied. If much pus forms, the cleansing should be repeated two or three times daily, care being taken each time to thoroughly irrigate the entire wound with the antiseptic solution. In many cases of suppuration of a wound the pus will have a tendency to burrow under the edges of the wound, and to form pockets. These should be carefully sought after, and when found thoroughly washed out. For this purpose, the medicine dropper found in the Cabinet may often be employed to advantage, or in the case of extensive wounds, the fountain syringe may be used to irrigate the wound. Place the antiseptic solution in the syringe and hang it at a sufficient elevation to insure considerable force to the stream, and allow it to play over

the surface of the wound. The rubber nipple may be removed from the glass tube of the medicine dropper, and the glass tube inserted into the rubber tubing of the fountain syringe, thus forming a very efficient irrigator for suppurating wounds; it will also be useful for cleansing a wound before dressing.

In dressing lacerated wounds all shreds of skin or tissue which have no extensive attachment to the surrounding tissues, or which have been so badly torn and injured as to destroy their vitality, should be removed at once, otherwise they will die and slough, thus endangering the safety of the whole wound by infection from the dead tissue. Never, under any circumstances, poultice a wound, since a poultice offers an ideal breeding place for bacteria, as it furnishes the two conditions essential for their rapid growth—heat and moisture. In the case of wounds which are very painful and attended by much swelling, a great deal of relief may be obtained by the use of hot applications, but they should be used very hot, and removed as soon as they begin to cool. A stream of hot antiseptic solution may be allowed to flow continuously over the wounded part, where there has been much laceration and bruising of the tissues; this will often stimulate the circulation, and help keep up their vitality until repair has begun.

Poisoned Wounds—When venom or virus is introduced into the tissues through a wound it is said to be poisoned.

Snake Bites—The venom of certain reptiles, when carried into the circulation through a wound, often produces alarming and sometimes fatal results. The intensity of its action is in proportion to the quantity and quality of the poison absorbed, and to the rapidity of its introduction into the system. If the venom be introduced directly into a vein it is far more rapid and powerful in its action than though it were lodged in the skin or fatty tissues, where its absorption would be slow. The most poisonous serpent is the Indian cobra; then comes the rattlesnake of the South; the rattlesnake of the North; the American copperhead; the American moccasin; and the spreading adder. The venom of snakes is excreted by a gland situated near the eye. In the act of striking or biting it is forced by a compressor muscle along a groove, or channel in the fang. When the snake is quiet the

fangs (one on either side) are folded backward, and are buried in grooves in the mucous membrane in the roof of the mouth. When ready for use they are drawn forward by certain muscles. The venom seems to be as potent in cold weather as in warm. The symptoms following snake bite will vary according to circumstances as above mentioned, but usually are as follows: pain of a sharp stinging character usually felt in the wound. Fright or shock may mask this symptom. Swelling rapidly follows, and in rattle-snake bite, spotted discoloration often occurs. The swelling extends in all directions, but is most marked along the line of the large veins and lymphatic vessels toward the heart. Headache, fever, chills, irregular breathing, a slow feeble pulse, and nausea may be present. Inflammation of the tissues with abscesses, and sloughing usually occur. If death does not occur, the case may terminate favorably in two or three days, or it may last for weeks or months.

Treatment—The first indication is for the immediate removal of the venom. Suction by the lips is an efficient method and may be safely practiced provided there is no abrasion on the lips or about the mouth. A bite about the mouth or neck is more dangerous than elsewhere since the great swelling which occurs may close the larynx and trachea, and thus smother the patient. Next in order of usefulness is free and immediate cutting out of all tissues within a half an inch of the bite, or free and numerous cuts be made in the tissues, so that the blood may flow freely and wash out the poison.

Permanganate of potassium is the best chemical, and whiskey the best physiological antidote. A solution containing five grains of the permanganate of potassium to one ounce of water should be injected into the tissues about the bite, using from one to three teaspoonfuls of the solution. Whiskey or alcohol in any form should be given freely to keep up the heart's action; large quantities of it can be taken under the circumstances without intoxication. Care must be used, however, in giving alcohol to children, as it has occasionally proved fatal. Where great swelling occurs, and gangrene is threatened on account of the great tension, free incisions or punctures should be made in the swollen tissues.

Bee, Wasp and Hornet Stings—These are very rarely fatal, but are painful and annoying. The application of an alkaline solution, if immediately used, will neutralize the pain and the tendency to swelling. A half teacupful of ordinary baking soda in a quart of water makes a solution of the proper strength to apply to the part. If the sting remains in the wound, it should be removed. Clay moistened into paste with saliva is an effective remedy.

Hydrophobia—The bite of certain animals, as the wolf, dog, fox, and cat is at times followed by alarming, and often fatal symptoms, due to the absorption of a specific virus.

The symptoms may follow the bite of an animal seemingly in perfect health, as well as from one noticeably affected with rabies. It may occur at any season of the year and in all climates. The wound always heals slowly, even where there is no specific virus present, for it is always lacerated and contused, and in addition it is infected by the contact with the saliva. The saliva of man at times will produce fatal septic poisoning when injected into the tissues. The period of development of rabies varies in man, from five days to as many months; and in exceptional cases to as long as one or two years. The symptoms of its approach are often vague. Pain along the nerves leading to the wound, and in and about the scar is considered as being among the earlier symptoms. Irregular heart action occurs, together with respiratory disturbance of a convulsive character. The face expresses a sense of actual suffering, or anxiety. Nausea, increased flow of saliva, and vomiting occur, and are often followed by general or partial convulsions. Death usually ensues between the second and fifth days. Professor Flint is of the opinion that no well authenticated case has ended in recovery.

Treatment—Preventive measures are of first importance. If Pasteur is correct in his deductions—and there is little doubt of his success with animals—enforced inoculation (vaccination) of all cats and dogs should be practiced. The wound inflicted by any animal, especially one known or suspected to be suffering from rabies, should be immediately and freely removed with a knife, or the parts around the wound destroyed by the actual cautery. When possible the mouth should be applied to the

wound and strong suction employed. After the poison has been absorbed, and with the appearance of the convulsive stage, the case should be placed in the hands of a skilled physician for the administration of medicinal remedies.

Lock Jaw—Tetanus—This is caused by infection of a specific bacillus or germ. Any wound, however small or seemingly insignificant, and upon any part of the body, may serve as the starting point of this affection. Wounds of the exposed parts of the body, as of the hands, feet and face, are especially liable to become infected. The time which may elapse between the receipt of the injury and the appearance of the muscular spasms is from a few hours to several weeks, but usually within the first three weeks after the injury. The earlier symptoms are a greater degree of pain and irritation about the wound than would be caused by the inflammation present. The pain is often felt at points along the nerves at some distance from the seat of injury. Irritability, a sense of muscular excitability and a feeling of apprehension are among the symptoms which precede the convulsive attacks. The muscles about the jaw are the first to be thrown into spasms, hence the term, lockjaw. In mild cases the spasms may be confined to these muscles. In severe cases the sense of distress is first in the pit of the stomach, this is followed by spasms of the muscles, beginning with the diaphragm, and involving in quick succession the muscles of the jaws, larynx, back of the neck, and upper part of the back. Respiration becomes interrupted, the expression of distress is intense, the face becomes blue, and death may occur from paralysis of the respiratory muscles. The spasms continue until the muscles are exhausted and can no longer contract. Successive attacks follow rapidly, being started by the slightest cause, as the jar occasioned by walking upon the floor, or the contact of the clothing against the oversensitive skin. The mind remains clear until carbonic acid poisoning occurs from interference with respiration. The pulse and temperature vary between great extremes—records of the pulse show as high as 160 beats per minute, while the temperature has been found as high as 112° F. Such a temperature indicates the near approach of death, which may occur in a single spasm, or the patient may survive a number of attacks. The danger of death diminishes if the patient survives the fifth

day, although the vast majority of cases end fatally before this. High temperature, and violent and frequent spasms are given as symptoms.

Hysteria is more apt to be mistaken for tetanus than any other disease. In hysteria there is usually no elevation of temperature and the symptoms of great and acute distress are absent. Hysteria occurs chiefly in females; tetanus, in a large majority of cases, in males. The spasms of strychnia poisoning are quite similar to those of true tetanus, but in strychnia poisoning the spasms come on within a few minutes after the poison has been taken; the muscles of the jaw are not the first affected as in true tetanus, and are not always rigid during the attack. The convulsive movements of strychnia poisoning are of short duration, and complete relaxation occurs, while in tetanus the muscular rigidity continues.

Treatment—The essential feature of the treatment is prevention, by thorough cleansing of all wounds with the antiseptic solution made by dissolving two tablets of No. 38 in a quart of water, and washing the wound in the manner advised when directing the dressing of wounds. When tetanus is impending, the most perfect quiet must be maintained about the patient, and the administration of concentrated nourishment continued to keep up the patient's strength. The medicinal treatment is similar to that of hydrophobia in the main and should be in the hands of a skillful physician.

BURNS AND SCALDS—FROSTBITE.

The degree of danger from burns and scalds depends more upon the extent of surface of the skin destroyed than upon the depth of the burn. Burns of the head and face are most dangerous; those of the extremities least grave. Recovery is rare after destruction of one-third of the skin surface of the body. Death may result from shock, or exhaustion, from prolonged suppuration and septic poisoning. In the case of a slight burn or scald involving only a small area of the surface of the body and not extending beneath the skin there is simply local disturbance. When, however, a considerable area of tissue is burned or scalded,

symptoms of profound constitutional disturbance rapidly come on. The patient will have chills or rigors, suffer excruciating pain, and show in his expression extreme anxiety as to his condition, and sinks into a condition of collapse, which is often the beginning of a fatal ending. When death does not occur at once, the duration of this stage is from six to thirty-six hours. It is then followed by the stage of reaction and inflammation. The character of fever, which is found in this stage, depends upon the extent of tissue destroyed, and upon the occurrence of certain complications in the upper portion of the intestines, and about the lungs. Inflammation of the glands in the upper part of the small intestine, and the formation of an ulcer and subsequent perforation ending in death, is not of infrequent occurrence during the second week after the accident. Peritonitis, pleurisy or pneumonia may occur in any case at about the same time and add much to the gravity of the case. Inflammation of the larynx and bronchial tubes is apt to follow where scalding steam has been inhaled.

Treatment—The first thing in severe cases is to relieve the pain. Give one tablet of No. 25 every twenty minutes until patient is easy, but do not give more than six doses within twelve hours. Stimulation with whiskey or brandy, either by mouth or by injection into the rectum, is also indicated to prevent collapse, or to modify the intensity of the shock. The clothing should be carefully removed, and the burned surface at once covered with some protective material so that it may be kept from contact with the air. No. 42 is the best covering of this sort, as it not only protects from the air, but is a healing agent. A mixture of equal parts of linseed oil and lime water is a good covering. If these are not at hand, the part may be covered with a layer of ordinary white lead as mixed for use in painting dwellings. Flour sprinkled over until all the burned surface is entirely covered is a good method of treatment and may be carried out in almost any emergency. Lint, or thin layers of absorbent cotton, dipped in a solution of carbolic acid, one teaspoonful, in one-third of a pint of sweet oil, may be laid directly upon the wound, so as to entirely cover it. No pressure should be permitted on the burned surface. In case the burn is upon the back or posterior surfaces of the extremities, the patient

should be placed in a prone position, and be kept lying upon the face. When sloughing and suppuration commence, great care as to cleanliness should be observed, to prevent absorption of septic poison. The dressing should be changed frequently, especially when the temperature, as shown by the thermometer, which should be used at least three times a day, shows any considerable elevation. The entire surface of the wound should be thoroughly washed with an antiseptic solution, made by dissolving two tablets of No. 38 in a quart of water. The surface may be gently wiped off with absorbent cotton pledgets dipped in this solution, and then the entire surface should be flushed with the solution. When granulation tissue has begun to form, No. 40 should be thickly spread upon pieces of muslin, and then placed upon the wound. This should then be covered with a piece of rubber tissue or a greased cloth. Proud flesh will often occur during the stage of granulation, and this must be destroyed by the application of lunar caustic, or the masses of proud flesh may be compressed by binding them down with strips of adhesive plaster. Where there has been extensive destruction of skin, so that the scar cannot form, the transplantation of skin should be practiced, but this procedure must be left in the hands of a physician.

Burns from acids and alkalies require no different treatment from other burns, except to at once neutralize the acid or alkali which has caused the burn.

Frostbite—The effect of prolonged and extreme cold upon the tissues is to cause the capillary blood vessels to close, followed by loss of sensation and death of the tissues by gangrene.

Treatment—There should be an effort to gradually restore the circulation by friction in a low temperature. A part of the body benumbed by cold should never be suddenly exposed to a high temperature, but should be bathed and rubbed in snow or cold water, the temperature of which is slowly elevated. When gangrene results, amputation is demanded after the line of demarcation between living and dead tissue has been established.

CARBUNCLE.

This disease is characterized by an inflammation of a low order involving chiefly the skin and the connective tissue immediately beneath it. It is a disease of faulty nutrition. The cause is a stoppage of the circulation through the capillaries of a certain part, and this is followed by localized gangrene; the inflamed area breaks down in several places, giving discharge to parts of dead tissue and pus, usually small in quantity. Carbuncles are apt to occur in connection with certain general diseases which are attended with considerable disturbance of nutrition, such as diabetes mellitus, consumption, scrofula, etc. They are apt to occur in parts of the body subjected to more than ordinary irritation, as the back of the neck, where the collar presses, or the region of the buttocks.

Symptoms and Signs—Loss of appetite, headache, fever, varying in intensity, which are followed by or accompanied with deep-seated pain in and about the point of inflammation. The skin at this point becomes tense, inflamed, throbbing and painful; the epidermis blisters in spots, and the dead tissues slough away. Often the gangrene will extend rapidly through the underlying fatty tissues before the skin breaks down. Blood poisoning may occur from absorption of septic matter from the dead tissue. The result of carbuncle depends upon the condition of the patient, the age, the location and the amount of tissue involved, and whether or no blood poisoning occurs. When it occurs in diabetes or any dangerous disease, it hastens the fatal result. When situated upon the face it is always a grave condition. This is in part due to the great pain which follows in the parts in which the trifacial nerve is distributed. When located upon the thorax, the pleura may be involved, and thus cause a grave complication.

Treatment—This should at once be directed toward the improvement of the patient's vitality by all possible means. Tonics and stimulants should be freely used and food in concentrated form should be given. The local application of heat will give some relief, but the chief consideration is to get free drainage of all fluid and septic material from the diseased area. This is

obtained by making free incisions into the diseased tissues, usually in the form of a cross or several lines of incision radiating from a common center. This can be done with satisfaction only under an anæsthetic, and should be performed by a physician. Usually considerable hemorrhage will follow the incision which may be controlled by packing the wound with antiseptic gauze. The after treatment should be hot or warm antiseptic gauze dressings, applied loosely, and covered with a layer of absorbent cotton or oiled silk. Poultices, if used at all, should be antiseptic in their preparation.

OBSTETRICS—CHILDBIRTH

Very often it will be found impossible to get a physician soon enough to care for a case of childbirth, and it is therefore important that the one who assumes the responsibility may know how to conduct a normal case of labor without the personal direction of a physician. Oftentimes the lives of both mother and child will depend upon the skill and promptness of the nurse.

A woman who is carrying a child is said to be pregnant, and the usual duration of pregnancy is reckoned as about 280 days from the first day of the last menstruation. During this condition the uterus or womb becomes enlarged, rises up out of the pelvis and occupies the abdominal cavity. Other signs of this condition are suppression of the menses or monthly flow, enlargement of the breasts and presence of milk in them, and movements of the baby. Milk is sometimes found in the breasts as early as the second month and this is pretty reliable evidence that pregnancy exists. During pregnancy the breasts enlarge and are tender, the veins show plainer, and the pink color about the nipple becomes darker. The veins of the legs often enlarge and sometimes the feet swell. Trouble with the bladder is quite common. Constipation, diarrhea, and other disturbances of digestion may be looked for. Nausea or morning sickness is common early in pregnancy. The appetite is capricious and there may be great hunger or foods which the patient is usually very fond of may be disliked. During the fourth month movements are usually felt by the mother and about this time the morning sickness usually stops. Many nervous symptoms may be present with pregnancy, such as headache, neuralgia, irritability, sleeplessness, etc. The only certain sign of pregnancy, however, is the hearing of the heart beats of the infant when the ear is placed upon the abdomen of the mother. The heart of a child in the uterus beats very much faster than the pulse of the mother, so there is no danger in confounding the two. The child in the

uterus is connected therewith by the placenta, more commonly known as afterbirth, and the cord, and through the cord the child receives nourishment from the mother. At the end of nine months the child is fully developed and is expelled from the uterus by the process known as labor.

Miscarriage—If such an expulsion occurs before the seventh month it is known as an abortion or miscarriage. Should this occur at any time after the seventh month, it is called premature labor. The first indication of an approaching abortion is usually hemorrhage or bleeding from the uterus, generally accompanied by pain. The patient should at once be put to bed, as the threatened miscarriage may in some cases be avoided by rest and quiet. Should the miscarriage take place, care must be taken that the placenta or afterbirth is all expelled, as the retention of even a part of this might bring on dangerous bleeding or produce blood poisoning. The patient should be kept in bed after a miscarriage and receive the same care she would have had, had she gone on to full term; she must not be allowed to exert herself in any way for at least two weeks. It is important that this be done in order that the organs may regain their proper places before the usual duties are taken up. Miscarriage is more common in women who have borne children, than among those who are carrying the first child. After it has occurred a few times, it becomes very difficult to carry a child to full term.

Labor—Certain signs indicate the approach of labor. During the last two weeks the abdomen grows smaller and the uterus sinks down between the hip bones. The pressure on the bladder and rectum is increased and these organs require more attention. Contractions may be felt and finally these are accompanied by pain. True labor pains come on at regular intervals, each one being a little harder than the one before and are felt in the back. False pains are chiefly in front and are short and irregular. They do not aid at all in the labor and many times result from indigestion or an overloaded bowel. When indications show that labor is coming on, both the bowels and bladder should be emptied. As the true pains begin there is often a discharge of blood. This is sometimes called the "show."

There are three distinct stages to labor. The first is the stage

when the mouth of the uterus dilates or opens and ends with the breaking of the "bag of waters." The second stage is while the child passes from the uterus along the canal of the pelvis, and ends when the child is born. After the waters have escaped, the uterus contracts upon the child and forces it toward the outlet of the pelvis. Each pain is now accompanied by an impulse to bear down and this aids in delivering the child. During the third stage, the uterus contracts on the afterbirth and forces it out also. The uterus now contracts into a firm hard ball and some pains, known as after pains, are still felt. These gradually disappear. Very soon a discharge begins which lasts for three or four weeks. It requires six weeks for the organs to regain their normal size and condition. During the two weeks immediately following the birth of a child the mother very easily takes any disease and care should be taken that she be not exposed in any way. The average time of labor is from ten to eighteen hours.

Preparation for Labor—When it is determined that labor has actually begun, the patient and the room should be put in readiness. Unless there is a history of other labors being very rapid, the patient need not be put to bed at once; it is better, in fact, that she should stand or walk about, resting occasionally on a chair, but staying in an upright position, as this position favors the descent of the head into the pelvis. The bed should be prepared for her, and well protected. The under sheet should be put on tightly, as it may not be changed again for some days; over this place an oilcloth or rubber blanket and over this another sheet. An oilcloth or rubber blanket should always be used, as it is much easier to clean the bed, and after labor is over pull out the sheet just next the oilcloth, wipe off the oilcloth and place a clean sheet under the patient. She will then have a dry clean bed to lie on. The patient should have on a clean night dress and over it a loose wrapper, which can be slipped off when she is ready to go to bed. Brush the hair and braid it tightly. See that the bowels and bladder are empty and to make certain that the bowels are empty it is well to give an injection of warm water. Have at hand plenty of clean towels, hot and cold water, some finely cracked ice if it is to be had, soap, scissors, strong cord, safety pins, napkins for mother and child, a binder or T bandage

for the mother, a small blanket to receive the baby, a small bath tub or large wash bowl, plenty of soft rags, band and clothing for the child, two or three chamber vessels, a fountain syringe, ointment No. 41, carbolic acid, sweet oil or sweet cream, fluid extract of ergot and chloroform.

The patient may be allowed plenty of food that is easy to digest, but no stimulants, as they increase the danger of hemorrhage after the child is born. The first stage of labor lasts from three to six hours. An examination should be made early to see that everything is normal. Oil the examining finger well and introduce, between pains, until it reaches the open mouth of the uterus. The head can then usually be felt. Efforts at bearing down should not be encouraged during this stage, as it is only a waste of energy and exhausts the patient. No one should be allowed in the room but the necessary assistants. The patient may lie in bed in any position she chooses. Very little exposure is necessary; the clothing can be so arranged as to cover the patient, and yet be protected from discharges. After the waters have broken and several severe pains have passed, another examination should be made. Carefully feel around the head and see if anything except the head is presented. Sometimes the cord comes down ahead of the head, in such a case place the patient upon her elbows and knees and work the cord back, then be careful that the cord does not catch about the neck of the baby and strangle it. The pains now become more severe and the inclination to bear down is felt—at this time it is of benefit. During this stage, after the breaking of the bag of waters, the pains are severe and the back of the patient should be supported. She should also have something to pull upon if she so wishes. A sheet fastened to the foot of the bed is useful for this purpose. As the head approaches the external opening, it should be thoroughly plastered with No. 41; this will many times prevent the external parts from being torn; and as an additional precaution, discourage the bearing down and remove anything that may have been used to pull upon. As soon as the head begins to show, gently push it back when the pains occur, as a too rapid expulsion is sure to rupture the external parts. As soon as the head is born, look and see if the cord is about the neck; if so draw it down gently and slip it over the head. If

you cannot do this or if the cord is two or three times about the neck, tie the cord firmly in two places and then cut it between the points that are tied. The cord can then be easily unwound. There is plenty of time to do this, as it is usually several minutes before the shoulders follow the head. It is seldom necessary to tie the cord in this manner. As soon as the child is born, lay it down at right angles to the mother and at such a distance that the cord is not tight. If breathing does not start at once, wipe out the nose and mouth with a soft cloth and sprinkle a little cold water over the babe. Do not cut the cord until the child has cried or until no pulse beat can be felt in the cord. Tie the cord about two inches from the child's abdomen and tie again about two inches from this tie, using broad strong cord or narrow tape. Then cut the cord between the two tied places. Examine the cord after an hour or so and if there is any bleeding, tie it again. In the opening chapter on Children's Diseases will be found full directions for the care of the baby. Should the above course not succeed in starting the breathing in the baby, dip the baby in cold water and then in hot. This must be done quickly and repeatedly. Rubbing the surface of the body with brandy or whiskey is sometimes of benefit. Immediately after the child has been born, an assistant should place one hand on the abdomen of the mother and hold it firmly over the uterus until the afterbirth has been expelled and contraction of the uterus has taken place. The afterbirth may be expelled immediately after the birth of the child or after an interval of half an hour or more. Immediately after the child has been born give to the mother one-half teaspoonful of fluid extract of ergot. This will in many cases prevent a serious hemorrhage. As soon as the afterbirth has come away carefully examine it to see if it is entire. If any portion is missing it must be looked out for until it has passed and if it does not pass during the first day a physician should be called. The parts may now be bathed with warm water, all soiled clothing and cloths removed, a clean napkin placed over the part and the T bandage put in place. The part which passes around the abdomen should be drawn snug and fastened while the portion which holds the napkin in place need not be so tight. As soon as the mother has been made clean and comfortable, she should be allowed to rest and sleep if she will.

All persons with the exception of one attendant should be sent from the room and no talking should be allowed. While the mother rests the child may be cared for as instructed in the chapter on Care of Young Children. After the mother has rested for a few hours, and the child has been washed and dressed, it is well to allow the child to nurse. There will not be an abundance of milk until the third day, but the amount present will be quite sufficient for the needs of the child. If the child cannot empty the breasts, the milk should be drawn off by a breast pump. Never allow a child to nurse from one breast alone, but alternate in the use of the breasts. If the nipples are tender, bathe them daily in alcohol and cleanse carefully before allowing the child to nurse. If the child, for any reason, is not to nurse, the secretion of the milk must be checked. This is usually done by bandaging the breasts closely, supporting them by pads of cotton on each side, so that the pressure will be applied evenly. When it is desired to stop the secretion of milk the bowels must kept open and as little fluid as possible taken into the stomach.

The mother should be kept in bed for ten days or two weeks after the birth of a child and should not be allowed to sit up for any purpose; a bed pan may be used to attend to the calls of the bowels or bladder. It is of the greatest importance that she and everything about her be kept clean. She should have a carefully given sponge bath all over each day, and the private parts should be washed two or three times each day. If the discharge has a bad odor, a vaginal douche should be given morning and night. Use a fountain syringe full of warm water first, and then dissolve six tablets of No. 3 in a quart of warm water and douche with this. Have plenty of fresh air but do not chill the patient. The diet should be fluid for the first day or two and light for a week; after that time allow the patient to eat whatever she pleases.

Hemorrhage—Bleeding after delivery is known as postpartum hemorrhage or secondary hemorrhage. It sometimes follows a perfectly natural labor and may be so severe as to endanger life. There is little fear of bleeding so long as the uterus is firmly contracted. If it is felt to be swelling, it is a sign of danger, and every effort must be made to cause the uterus to contract; contraction will make the vessels smaller and prevent the

bleeding. Swelling of the uterus, pale skin, cold hands and feet, feeble pulse and slow feeble breathing are signs which indicate bleeding and must be watched for. If hemorrhage occurs, lower the head, raise the hips, apply pressure with the hands upon the upper end of the uterus, place ice or cold cloths all about the uterus and external parts, inject water as hot as can be borne into the vagina and give one teaspoonful of fluid extract of ergot. If the bleeding should come with a gush, do not stop to do any of these things, but at once roll up the sleeve on one arm and place the hand and arm in water as hot as can be borne for a second, then with the other hand upon the abdomen of the mother, insert the hand into the vagina and go on rapidly until the hand is in the uterus then double up the fist and rub the uterus roughly with the knuckles and keep the hand in the uterus until it thoroughly contracts. If you do not wish to employ this method, break some ice up into very small pieces and push these up into the uterus. The first method is to be preferred as it is quicker and in a case of this sort speed is everything.

Childbed Fever—Another peculiar danger to which a mother is liable at the time of childbirth is a form of blood poisoning known as puerperal fever, or childbed fever. When this occurs, it usually does so within three or four days after labor. The disease is caused in two ways, either by the absorption of decomposing matter produced by the woman herself, or from infection brought to her by means of dirty hands, cloths, instruments, etc. The greatest care should be taken that everything about a lying-in woman be perfectly clean and free from infection of any and all sorts. The disease begins by chills, followed by high fever; the pulse is rapid, the countenance sunken and anxious; there is a sickly odor to the breath; and diarrhea and vomiting are usually present; the secretion of milk ceases and the discharge from the parts either stops or is changed. The disease is dangerous to life and should be treated by a physician.

During the pains of labor, the pain may be somewhat relieved by allowing the patient to have a few breaths of chloroform. This is best given by placing a handkerchief in an ordinary tumbler and allowing a few drops of chloroform to fall upon the handkerchief. The patient can then place the tumbler over the

nostrils and breath the chloroform. If the patient can be allowed to hold the tumbler herself it will be impossible for her to get an overdose, as the moment the patient begins to lose consciousness the hand and tumbler will fall away from the face. The patient will soon reach for the tumbler. A few more drops of chloroform may be placed on the handkerchief and the patient allowed to inhale again. This may be done an endless number of times without danger to the patient.

TREATMENT OF POISONING

Castile soap dissolved in four times its bulk of hot water and drunk by the cupful is one of the the best remedies in many cases, especially in poisoning by metals or acids. It should never be used when the poison is an alkali. The white of egg dissolved in water is useful in poisoning by metals. Vinegar is useful in cases of poisoning by alkalies. Strong black coffee is used in cases of poisoning by opium, morphine, chloral and atropine. Camphor is the principal remedy to be used for all vegetable poisons. Milk, oil and mucilage are used for all acids and alkalies which destroy tissue. Charcoal is a remedy for arsenic, corrosive sublimate and poisons of this sort. The remedies which are used to produce vomiting in a patient who has been poisoned are zinc sulphate, the dose of which is twenty grains, and for children tartar emetic is the best remedy, one-half grain usually being a sufficiently large dose.

In poisoning from acids, give chalk or magnesia, plaster from the wall mixed with water, slaked lime mixed with water; give any of these things and at the same time give milk and oil or the white of an egg.

Carbolic Acid—In poisoning by carbolic acid the membrane lining the mouth and throat will be very white and will look burned or seared; there will be dizziness and headache; the pupils will be very small, vomiting will be present; the pulse is slow at first, then rapid; the urine has a dark olive green color.

Treatment—Empty the stomach by means of a stomach pump, if one can be obtained very soon, give slacked lime and water and a good remedy is sulphate of magnesium or sulphate of sodium given in one ounce doses.

Sulphuric Acid—In poisoning by this acid the mucous membrane of the mouth and throat will be burned quite deeply. Death occurs very soon and with convulsions, in severe cases. The mouth and throat are whitened, swallowing is very painful

and there is much distressing choking and retching. The vomited matter will contain black lumps. The saliva will run freely. The abdomen is usually distended and very tender when pressed upon. The pulse is small and rapid. In mild cases the recovery is very slow; severe cases terminate fatally.

Treatment—Give chalk, plaster, slacked lime, milk, white of egg, etc. Should the patient not die, the above treatment may be followed by giving small bits of ice; the mouth should be gargled by a solution made by dissolving two tablets No. 3 in a cup half full of warm water. The patient should live entirely upon milk, eggs and soup for a long time.

Hydrochloric and Nitric Acids—The symptoms are similar to those of sulphuric acid poisoning. Nitric acid sometimes stains the parts touched yellowish, and the vomit may be yellowish.

Treatment—The treatment is the same as for sulphuric acid.

Oxalic Acid—This acid acts much as the acids mentioned above excepting that the burning from oxalic acid is less severe and certain nervous symptoms are noticed; the finger tips become numb; convulsion occurs and paralysis may occur.

Treatment—Give lime water and finely powdered egg shells.

Ammonia—The fumes of ammonia affect the air passages; the solution affects the mouth, throat and stomach. When ammonia comes in contact with the mucous membrane of the mouth, throat or in fact any mucous membrane, an intense inflammation is produced. In the mouth this inflammation causes an increase in the flow of saliva; in the stomach it produces vomiting and if a piece of litmus paper be placed in this vomited matter it will remain blue, whereas the normal secretion from the stomach causes litmus paper to turn red. Ammonia poisoning also produces diarrhea, cough, difficult breathing, and in severe cases rapid pulse, great weakness, pain, dizziness and convulsions.

Treatment—Empty the stomach by the use of the stomach pump; if one is not to be had, give to child one tablet No. 18 every ten minutes until vomiting is produced; to an adult give one tablet No. 32 every ten minutes until the same effect is pro-

duced. After free vomiting has been produced, give the juice of a lemon; one dose of this will be sufficient. Give bits of ice quite often and give one tablet No. 15 every hour.

Caustic Soda—Caustic Potash—Treat cases of poisoning from these substances in exactly the same manner that cases poisoned with ammonia are treated.

Saltpeter—When this is taken in an amount sufficient to produce poisoning, vomiting and diarrhea are the first signs and very soon severe pains in the abdomen follow with great weakness, cold skin and rapid but very tiny pulse.

Treatment—Give one tablet No. 15 every hour to a child and one tablet No. 25 every hour to an adult. Discontinue the medicine after six doses have been given. Also give one-fourth to one-half teaspoonful spirits of camphor every two hours. Allow the patient to hold small bits of ice in the mouth as much as he desires.

Iodine—Iodine poisoning is usually produced by injecting the tincture of iodine into the body as in the case of a tumor, or by the long continued use of some drug which contains iodine, as the iodide of potash. The symptoms of iodine poisoning are, in the case of poisoning by an injection of the tincture, small rapid pulse, blue skin, vomiting, difficult breathing. The urine does not flow freely and later the skin becomes very red, the throat is sore, the nose "runs," albumen may be found in the urine, there is severe headache, especially in front, the eyes are red and inflamed and eruptions occur on the skin. In poisoning from the long continued use of a drug containing iodine, there is a free discharge from the nose, the eyes are red and inflamed, the throat is sore, the digestive system is deranged; there is headache, dizziness, and a number of mild nervous symptoms.

Treatment—When the poisoning has just occurred, give the white of an egg and whiskey, brandy or spirits of camphor. Give the stimulants in small doses and repeat them often.

Lead—Lead poisoning is often met with and acute cases produce severe symptoms in the stomach and intestines; the colic is very severe.

Treatment—In acute lead poisoning give one tablet No. 4

every two hours and give the white of an egg in milk every hour. If the case comes under observation soon after the poison is taken, as the taking of white lead or drinking paint, give to a child one tablet No. 18 every ten minutes until free vomiting is produced and give to an adult one tablet No. 32 every ten minutes until the same result is produced. Chronic lead poisoning is seen in type-setters, type-founders, painters, potters, and any class of persons whose work keeps them near lead and breathing lead dust most of the time. Some of the symptoms in chronic poisoning are violent colicky pains radiating from the navel; the bowels are constipated; the abdomen is sunken and hard; there is vomiting; the pulse is slow and hard; and occasionally the brain is affected.

Treatment—Apply cloths wrung out of hot water over the seat of pain and give one tablet No. 25 every three hours; give frequent warm baths and keep the bowels well open by the use of No. 4.

Copper—Blue Vitrol—Verdigris—In poisoning from any of these there will be a copper taste in the mouth, vomiting of greenish matter, severe colic, bloody stools with much pain about the rectum, headache, dizziness, loss of feeling, and there may be paralysis or delirium.

Treatment—If vomiting has not already taken place, produce it by giving No. 18 to children and No. 32 to adults. Give as directed under lead poisoning. Having produced free vomiting, give the white of an egg in milk every hour and give one tablet No. 4 every three hours.

Mercury—Corrosive Sublimate—The mucous membrane of the mouth, throat, gullet, stomach and intestines is seared or burned quite deeply; there is a taste of metal in the mouth; vomiting is present; there is diarrhea with much pain about the anus. Poisoning from corrosive sublimate usually ends in death very soon. A mild form of mercury poisoning is that known as salivation and usually occurs from an overdose of calomel.

Treatment—Give the white of an egg in milk every hour; give one tablet No. 15 every two hours; and give dialyzed iron at frequent intervals.

Phosphorus—The most common form of phosphorus poisoning is from eating matches. The symptoms are violent pain in the stomach, vomiting—the vomited matter smells of phosphorus. These symptoms will last an hour or two and then will follow two or three days of comparative comfort. Then very grave symptoms appear: the skin and whites of the eyes become yellow; there is severe pain about the liver and this extends over the entire abdomen; the liver is somewhat enlarged; there is some fever; the pulse is feeble and rapid; sometimes there is bleeding from the stomach; nose bleed is common; the mind remains clear, the urine contains albumen. Death usually occurs at the end of one or two weeks although in mild cases recovery may occur.

Treatment—In cases in which the poison has just been taken, wash out the stomach with the stomach tube, or if this is not to be had, give one tablet No. 32 every ten minutes until vomiting is produced. Give one tablet No. 4 every three hours. Give thirty drops of the oil of turpentine in mucilage or milk—give but one dose of this remedy.

Arsenic—Arsenic poisoning occurs from taking arsenic, from green wall paper, and from Scheele's green. The symptoms of arsenic poisoning are violent vomiting, watery stools, severe pain in the abdomen, headache, dizziness, faintness, twitching of the muscles, a weak heart; the skin is blue and the patient very weak. Severe cases end in death in from one to two days.

Treatment—Empty the stomach with a stomach tube or by giving one tablet No. 32 every ten minutes until vomiting is produced. Give two tablespoonfuls of dialyzed iron every thirty minutes. Give one tablet No. 4 every hour.

Illuminating Gas—Coal Stove Gas—Poisoning from this source is usually due to long continued breathing of gas. This usually takes place at night when the gas enters the sleeping apartment by means of a leaky stove or an open gas jet. The symptoms are, at first dizziness, headache, throbbing in the temples, ringing in the ears and floating spots before the eyes. The patient gradually becomes unconscious. The skin is blue and the breathing irregular; the temperature is lower than normal.

Treatment—At once give the patient plenty of fresh air, perform artificial respiration in the manner described in the chapter

on Drowning on p.346 and give small doses of brandy or whiskey.

Belladonna—Atropine—Nightshade—One of the most marked symptoms in belladonna poisoning is the dryness of the throat. Patients poisoned with any of the above always complain of an excessively dry mouth and throat and of great thirst. There is headache and dizziness, the pupils are widely opened, the skin has a peculiar red rash which resembles that of scarlet fever, the mind is disturbed and peculiar fancies appear to the patient.

Treatment—The remedies used to counteract the effects of belladonna are poisons and it is best to have a physician give them. The following is the treatment used: Give to an adult one-fourth grain of morphine and repeat the dose in four hours.

Nicotine—Tobacco Poisoning—This form of poisoning occurs sometimes from the excessive use of tobacco. The symptoms are slow small pulse, a sense of oppression, some vomiting, irregular action of the heart and attacks of pain in the heart, loss of sleep, disturbances in digestion and loss of vision.

Treatment—Give up the use of tobacco entirely and take one tablet No. 17 three times a day after meals. Continue the use of this for at least a month.

Strychnine—The symptoms of strychnine poisoning are violent convulsions, lockjaw, spasm in which the head is thrown back and the head and feet nearly drawn together; the pulse is small and rapid; the convulsions occur with intervals of rest between them; the intellect is usually perfectly clear and recovery takes place only in the mildest cases.

Treatment—Empty the stomach by the use of the stomach pump or by giving to a child one tablet No. 18 every ten minutes and to an adult one tablet No. 32 every ten minutes. Stop the use of the remedies as soon as vomiting begins. Then give one tablet No. 7 every hour until twelve doses have been given and then one tablet every three hours. Also give one tablet No. 25 every two hours.

Morphine—Opium—Poisoning from morphine or opium begins with fatigue, headache, drowsiness, darkening of the vision, nausea and vomiting, although many times the vomiting is

absent. Then the patient slowly loses consciousness and the breathing becomes irregular and noisy, the muscles completely relax, the pupils of the eyes are very small, the pulse is rapid and small.

Treatment—Empty the stomach by giving to a child one tablet No. 18 every ten minutes and to an adult one tablet No. 32 every ten minutes until vomiting is produced. Give large quantities of strong black coffee; give cold baths and slap the patient's body smartly with a wet towel; give a teaspoonful of spirits of camphor every two hours. Do not allow the patient to go to sleep and to prevent this it is often necessary to keep the patient walking all of the time with an attendant on either side slapping the body with a wet towel.

Poisonous Mushrooms—A number of mushrooms are poisonous and cases of poisoning from this source are quite common. The symptoms of mushroom poisoning are nausea, vomiting, diarrhea, headache, general sick feeling and the most characteristic, the presence of blood in the urine. In severe cases death occurs and is preceded by convulsions. Other symptoms occur and the treatment of such cases is very unsatisfactory, hence the best advice that can be given is, do not eat mushrooms unless they are purchased from a hot house.

Treatment—Empty the stomach in the manner already described in this chapter. Give one tablet No. 16 every two hours until the bowels move very freely. Give one teaspoonful of whiskey or brandy every hour.

Tainted Sausages—Poisoning from this source sometimes occurs as a result of eating partially decayed sausages. The symptoms are pain in the stomach, nausea, vomiting, colic and diarrhea. There is also marked feebleness, difficult breathing, dizziness, headache, drowsiness, some disturbance of vision and often the eyelids grow very thick and heavy. The mouth is dry, the pulse feeble. The cases are usually prolonged but rarely prove fatal.

Treatment—Empty the stomach by giving No. 18 every ten minutes to a child, and No. 32 every ten minutes to an adult until vomiting is produced. Give two tablets of No. 9 every half hour and give one-half teaspoonful of brandy or whiskey every half hour.

Tainted Meat—The special poison in tainted meat is not yet fully known. The usual symptoms are vomiting and diarrhea and the case may closely resemble cholera. In most cases wakefulness, delirium and headache occur; often there is high fever and the skin may be covered with red spots; the pulse is small and a little faster than normal and there is a sense of oppression about the lungs.

Treatment—Empty the stomach as directed under Tainted Sausages and give two tablets No. 9 every hour; give one-half teaspoonful whiskey or brandy every half hour and give the patient a bath in lukewarm water every three hours.

Fish, Mussels, Cheese and Milk—Poisoning from these substances occur at times. The symptoms are much the same as in the preceding section and the treatment should be carried out in the same manner.

Poison Ivy—The effects of poison ivy are somewhat familiar to everyone. Some persons are so susceptible to the poison that if they go anywhere near the plant they will be poisoned. Others can even rub the leaves on the bare skin without any effect being noticed. The action of the plant is that of an irritant to the skin, causing redness and swelling of the parts affected, with a tiny eruption and intolerable itching. The trouble will spread rapidly over the surface of the body, and will even extend to the cavities and affect the mucous membranes lining them, causing redness and swelling and a feeling of thirst in the mouth and throat, cough, nausea and vomiting, dizziness, etc. The effects of this poison usually last for ten or fifteen days, after which time the skin will scale off.

Treatment—One of the drugs used for the treatment of poisoning by this plant is fluid extract of *Grindelia Robusta*. Rub the affected parts thoroughly every three hours, but do not use force; be careful not to get any of the remedy in the mouth.

Other remedies which are used to apply upon the parts where the poison has taken effect are a solution of corrosive sublimate, lime-water, linseed oil and alum curd. The best remedy is a compound which does not keep at all well, and for this reason it is not put in the Cabinet, but a description of it will be found in the Appendix.

TREATMENT OF CASES OF DROWNING

Remove the person from the water as quickly and as gently as possible; turn the face downward for a moment, and push the tongue down in order that water, mucus, etc., may be removed from immediately over the windpipe. Give the patient plenty of fresh air; fully expose the neck and chest to the breeze unless the weather should be very severe. Next, the patient lying upon the face, place one forearm under the forehead, and raise the body up so that the water may run freely from the mouth. Place the patient upon one side and start the breathing again by slapping the body with a cold cloth or by placing ammonia or alcohol under the nostrils.

Very often the above measures will fail to accomplish the desired result and in such a case carry the body to the nearest convenient spot, remove the clothing and dry the body carefully; (if possible place it on a warm bed) and with the head and shoulders slightly raised, at once proceed according to the following instructions: Pull the tongue forward, to prevent obstruction to the entrance of the air into the windpipe; produce expansion of the chest by placing the arms of the patient close to his side and then draw them out and up until they almost meet over the head. Then bring the arms down to the sides again until the elbows meet over the pit of the stomach. This produces contraction of the chest. This imitation of the act of respiration should be kept up at the rate of fifteen to sixteen per minute. This method of treating cases of drowning is known as Silvester's method. The efforts to bring the patient to consciousness should be continued for several hours, if necessary, and constant effort must be made to keep up the temperature of the body by rubbing the body with warm flannels, with alcohol, and with the bare hand. Always rub up, that is, toward the heart and apply hot water bottles, hot bricks, etc., to the stomach, the arm pits, the feet and legs and

in fact to as many parts of the body as possible. As soon as the patient begins to revive somewhat, carefully administer small amounts of stimulants, hot soup, beef juice, etc. Harley says: "If the eyes are open, the pupils dilated, the white of the eye insensible to pain, the face pale, the skin cold, frothy mucus around the nose and mouth, no attempt at breathing, and the heart's action not to be heard when the ear is applied to the chest, the case is hopeless."

Signs of Death—Tie a string firmly about the finger. If the end of the finger becomes swollen and red, life is still present.

Insert a bright needle into the flesh. If it tarnishes in the course of half an hour, life is still present.

Moisten the eye with atropine. If life is present the pupil will dilate.

Hold the fingers closely side by side, and look through them at a bright light as at the sun. During life the color is pink; after death it is a dead white.

Putrefaction is an absolute sign of death. Better delay for it than run any risk of burying alive.

THE EYE AND ITS DISEASES

Anatomy and Physiology—The eye as an organ of vision consists of the globe, or eyeball, the protecting membrane and structures around it, the muscles which move it, and the optic nerve which connects the eyeball with the nerve centers in the brain.

The Eyeball—The eyeball is globe-shaped, the outer tunic or covering being made up of the sclerotic, or white membrane, and the cornea, or clear membrane, which is situated on the front of the eye, and is naturally a transparent substance. In many diseases, and in most cases of injury to the cornea, it loses more or less of its transparency. The sclerotic is a dense, tough, inelastic membrane, and is rarely affected by disease. Lying back of the cornea is a membrane, varying in color in different eyes, called the iris. This membrane is constructed of muscular tissue, freely supplied with blood vessels and nerves, and has an opening in the center, called the pupil. This opening varies in size under different conditions and degrees of light falling upon the eye. Still further back in the eyeball, just behind the pupil, is the crystalline lens, which performs the focusing of the rays of light in such a manner that an image of the object looked at is formed upon the retina at the extreme posterior portion of the eye. The retina is formed by the fibers of the optic nerve, which, where it enters the eye, is spread out in the form of a thin, delicate membrane lining the entire posterior, internal surface of the globe. The eye, as an optical instrument may well be compared with the photographic camera. Thus, in the eye, we have the interior of the eye lined by the pigment or choroid coat, corresponding to the interior or box of the camera, to which light can gain admission only through the diaphragm in the front portion; this portion in turn is represented in the eye by the pupil, which has the power of automatically regulating the amount of light which enters the eye. In both the eye and the camera

there is a focusing lens, and in both a mechanism for receiving and recording the impressions produced by the image formed. In the camera, this function is produced by the sensitized plate which receives and fixes permanently the impression of the image; in the eye the same function is performed by the retina, which receives the impression of the image focused upon it, but instead of retaining it permanently, transmits it as a sensation to the proper nerve cells in the brain for recognition and retention. Here the analogy between eye and camera ceases. In the manner of regulating the focus there is a marked difference in the two instruments. In the camera the focusing is accomplished by altering the distance between the focusing lens and the sensitized plate to accommodate for variations in distance between the object and the camera; but in the eye such a process is manifestly impossible, and the same result is brought about by a variation in the curvature of the lens itself, thus altering its refracting power. This process is called accommodation, and is accomplished by the action of a small specially arranged muscle within the eye. The arrangement of this muscle is such that when it is contracted the refracting power of the lens is increased, and when the muscle is allowed to relax the power of the lens is diminished. Thus it may readily be seen that the muscle of accommodation in the eye has a vast amount of work to perform, and in fact no muscles in the body except the muscles of the heart and respiration, are more constantly in action than the focusing muscle of the eye. With this explanation, it may be seen how any departure from the normal construction of the eye will have its effect upon the ease with which this muscle will perform its work. These variations in construction are called, errors of refraction, and may be divided into three general classes: First, hyperopia or far-sight; second, myopia or near-sight; third, astigmatism. These errors are all produced by alterations in some portion of the coverings of the eyeball which change its contour.

Hyperopia—Far-sightedness—In this condition the eyeball is shortened from before backward, so that the rays of light entering the eye reach the retina before coming to a focus. This condition calls for a greater amount of effort than normal on the part of the focusing muscle, hence the muscle sooner tires, and if the

effort of seeing is persisted in, especially if the eye be used for prolonged near work, the focusing muscle becomes irritable and even exhausted. There is a sensation of effort in looking; the eyes blur, and smart; pain is experienced in and around the eye, and headache follows, usually occurring over the eye or in the temples, although it may be located anywhere about the head or neck; this is called a reflex headache. A large proportion of chronic, persistent headaches are the result of eye strain, and in any case where headache is of a recurrent character, and where the cause is not apparent, the patient should have the eyes carefully examined by a competent oculist, and if found necessary, correcting glasses should be worn.

Myopia—Near-sightedness—This condition is exactly the opposite of far-sight, in that the eyeball is too long from before backward, and the distance between the lens and the retina is too great, so that the rays of light meet at their focus before coming to the retina, and crossing each other, fall upon the retina in circles of diffusion, producing blurred images. This condition is an evidence of a weakened state of the coverings of the eye, and generally indicates a diseased condition. Near-sightedness may be stationary in degree but the tendency is toward an increase in amount. This tendency is the result of the constant pressure of the fluids of the eye exerting its force outwardly upon the coats of the eyeball; and since the posterior portion of the coats about the entrance of the optic nerve is the weakest, the effect is to produce a bulging of the eyeball backward in that location. Headache and reflex pains are not common with near-sightedness, but all cases should, if possible, be corrected early, as often the tendency to increase in amount may be checked by wearing proper correcting glasses. Whenever a child does not see objects distinctly at a distance of twenty feet, and especially if when reading it holds the book very close to the eyes, the oculist should be called upon to make the proper examination and if necessary prescribe correcting glasses.

Astigmatism—This form of refraction is confined almost exclusively to the cornea, and consists of a difference in the degree of curvature of different parts of the cornea. That meridian of the cornea which has the greatest degree of curvature,

as a rule, lies at right angles to the meridian which has the least degree of curvature. These meridians may lie in any angle, so long as they maintain their relative position to each other. A good example of an astigmatic surface is the bowl of a spoon; in it is a long curve, lying in the direction of the length of the spoon, while the short curve lies across the spoon at right angles to its length. The effect of an astigmatic curve is to distort the image formed, as can be readily demonstrated by looking at one's reflection in a highly polished spoon. This form of error of refraction is very productive of eye strain and nervous irritability, and is one of the most prolific causes of headache. A skillful oculist can, however, fully correct the defect and give complete relief by properly adjusted lenses.

Conjunctiva—This is a term used to designate the mucous membrane which lines the inner surface of the eyelids and folding back from the lids upon the eyeball covers its anterior half. The membrane is divided into three parts, that lining the lids, called the palpebral portion; that covering the eyeball, called the ocular portion; and that portion lying between the two just named called the transitional fold. This membrane is very freely supplied with glands, blood vessels and nerves, and because of its exposed condition is very prone to disease. These diseases may be divided into non-suppurative, and suppurative.

Non-Suppurative Diseases of Conjunctiva—These diseases are very numerous but differ from each other chiefly in degree rather than in character. In the simpler forms, the membrane is reddened; there is an increase in the flow of tears, and a sensation of burning or smarting about the eyes, feeling as though a foreign body were present, or the eye had sand in it. These symptoms either disappear in a few days or pass into more severe forms, in which the existing symptoms are intensified, and in addition mucus is formed and there is a swelling of the membrane as a whole, but particularly in the glandular structures, which are enlarged until they stand out above the surrounding structures. The vision is not usually disturbed but the eyes are weak and any attempt to use them for close work aggravates the symptoms. This form of trouble is called follicular conjunctivitis or "pink eye" and usually follows exposure to irritating substances, dust or cold.

Treatment—Avoid use of the eyes for close work; bathe them frequently in hot water, for five minutes at a time. Dissolve two tablets No.1 in one tablespoonful of clean water, and drop two or three drops into the eyes every hour. This treatment will generally relieve the inflammation in a few days. If, after the inflammation has disappeared, the surface of the lids still appears rough, they may be lightly touched with a bit of alum which has been whittled to a smooth surface; after touching with the alum the surfaces of the lids should be washed off with warm water.

Trachoma—Granulated Lids—This is a disease of the mucous membrane lining the lids, and is caused by a specific germ which finds lodgment in the membrane. It is a very contagious disease, and any secretion or discharge from an eye suffering from granulated lids introduced into a well eye sets up the same disease. The disease is often epidemic and very frequently it will be transferred from one member of a family to all the others. In military camps or barracks, in boarding schools or in any locality where large numbers of people are closely associated together the disease is likely to spread very rapidly. Such being the case, it is essential that a person suffering from granulated lids should be provided with a separate wash basin and towel, and the greatest care taken to avoid spreading the contagion to unaffected eyes. The disease, however, is contagious only by direct transference of the discharge from one eye to another.

Symptoms and Signs—Granulated lids first begin as a simple irritation. The eyes feel hot and the tears flow freely. Soon the eyes feel as though full of sand; they become red and a considerable swelling of the lids ensues. The inflammation rapidly increases and the discharge becomes more profuse and contains considerable mucus; this soon changes to a muco-purulent character. When the mucous membrane is examined, it is found to be much swollen and thickened, and apparently covered with small lumps often arranged in ridges and folds. The eyeball soon becomes affected by the constant rubbing over its surface of the roughened mucous membrane of the lids, and the delicate outer covering of the cornea or clear part is rubbed off in spots causing superficial ulceration. These ulcerated portions frequently become infected by the poisonous discharges and exten-

sive destruction of corneal tissue follows, so that the eyesight is permanently damaged by the resulting scars or the eye may even be lost from perforation of the ulcer through the cornea followed by escape of more or less of the contents of the eyeball. The active stage of the inflammation usually lasts from two to six weeks and is then followed by the stage of contraction in which the swelling disappears and leaves extensive scars in the mucous membrane. This scar tissue continues to contract and produces a deformity of the lid known as entropion, in which the free margin of the lid is drawn in towards the eyeball so that the eyelashes rub against the cornea causing great irritation and much discomfort. This is the condition commonly known as "wild hairs," and is curable only by a properly performed surgical operation. When this operation is performed by a skillful surgeon the results are highly satisfactory, and it should always be performed providing a skillful operator can be secured.

Treatment—Little of curative value can be done by home treatment in this condition and a skillful oculist should at once be consulted and the case placed in his hands. Until such skilled attendance can be obtained, the eyes should be kept as clean as possible and frequent applications of hot water made. The eyes should be thoroughly washed out with water that has been boiled and then three or four drops of a solution made by dissolving four tablets No. 1 in two tablespoonfuls of boiled rain water, should be dropped into the eyes. Do this every half hour. Be careful to have separate towels, wash basin and handkerchiefs for the patient and to take every possible precaution to prevent the spread of contagion. The disease is essentially chronic in its nature and requires a long period of careful and persistent treatment for its cure. If proper treatment is begun early and continued the results are as a rule very satisfactory and but little if any permanent damage to the eyes should result.

Purulent Inflammation of the Eyes—In this inflammation the destructive symptom is the formation of true pus. It is a disease which is exceedingly destructive to the tissues of the eye and but few eyes which suffer from this disease escape without more or less permanent damage. The disease is due to a specific pus germ and hence is highly contagious, and the same remarks

given in connection with granulation of the lids, as regards care in preventing the spread of contagion, apply with added emphasis to this disease. Generally but one eye is infected at first and wherever possible the eye first infected should be kept carefully cleansed and especial care taken to prevent any of the discharge from entering the unaffected eye. A special form of this disease is that which is found in new-born infants and which is known as ophthalmia neonatorum. This disease is responsible for many cases of blindness and the results are all the more deplorable, since we know that it is a preventable disease, and furthermore that even after the eyes have become inoculated with the virus, that proper and timely treatment will prevent any permanent damage being done. The cause of the disease in infants is the entrance of poisonous material into the eyes either during or immediately after birth, the source of the poisonous material being the discharges from the genitals of the mother. These discharges are as a rule the result of specific disease in the mother, gonorrhea being by far the most frequent cause. The disease may be produced, however, by the acrid discharges of a chronic leucorrhea.

Symptoms and Signs—As a rule the disease is first noticed the second or third day after birth. The eyes will be reddened and the lids somewhat swollen; soon a discharge is noticed, which at first is watery, but rapidly changes into pus, becoming very profuse during the second and third days. The swelling increases until it is often very difficult if not impossible to open the lids sufficiently to examine the eyeballs. It is during this stage that the greatest danger obtains, for the swelling and pressure is so great that the circulation of the blood to the cornea is interfered with and its nourishment cut off. The vitality of the cornea is thus lowered and ulceration and sloughing follow with resulting damage or complete loss of the eye.

Treatment—The treatment of this disease is divided into first, prevention, which begins with the mother before the birth of the babe; and second, curative, which is to be applied after the disease has made its appearance in the eyes of the new-born infant.

In any case in which there is or has been a discharge of any character from the vagina of the mother before confinement, the

vagina should be thoroughly irrigated with the fountain syringe twice a day for two weeks before confinement. For an irrigating solution dissolve three tablets No. 38 in three pints of warm rain water and pass it through the vagina, elevating the syringe sufficiently to secure considerable force to the flow.

When the child is born, the nurse must first cleanse the eyes with a solution made by dissolving four tablets No. 1 in half a teacupful of warm water. Use small pledgets of absorbent cotton and take especial care in wiping the eyes to wipe away from the opening between the lids so that none of the matter on the face shall enter the eye. After the eyes have been thoroughly washed, the lids should be held widely open, and, with the medicine dropper, a stream of the disinfecting solution thrown into the eye. The eyes should then be closed and covered with a thin pad of absorbent cotton which has been wet in the solution and then squeezed out flat. Never re-wet a piece of cotton in the solution after it has touched the parts to be cleansed.

The above precautions are ample in all ordinary cases, but should it be known that the mother has at any time suffered from specific disease, or where there is a profuse discharge present from the maternal parts, it is well to employ as an additional precaution a solution made by dissolving two grains of nitrate of silver in one ounce of water; this solution may be used twice a day, dropping in three or four drops each time. The curative treatment consists of as perfect cleanliness as it is possible to obtain. The eyes should be washed out every few minutes with a solution made by dissolving six tablets of No. 1 in two table-spoonfuls of water. Any discharges around the eyes should be carefully washed away with cotton pledgets dipped in the above solution; then the lids should be opened as widely as possible and a stream of the solution from the medicine dropper thrown well under the lids so as to wash away any discharge which may be there. Sometimes the discharge is thick and ropy and cannot be easily washed away; it may then be removed by wiping with a wisp of cotton twisted upon the end of the cotton carrier found in the Cabinet. In case the patient cannot be under the care of a competent physician, the further treatment consists of the use of a solution made by dissolving ten grains of nitrate of silver in one ounce of water; this solution should be applied to the under sur-

face of the eyelid, after everting or turning the lids inside out and holding them in that position until the solution is applied with a small cotton brush on the cotton carrier, and then washed off with a stream of water or disinfectant solution from the medicine dropper. The nitrate of silver solution should be applied twice a day. The greatest care should be taken by those having the care of such a case to carefully wash their hands after touching the sore eyes, before touching anything else, as the smallest particle of pus or matter from the sore eye is sufficient to infect a healthy eye. The active stage of this inflammation is from ten days to three weeks; the discharge gradually ceases and the swelling subsides; the eyes remain red and the mucous membrane lining the lids will be thickened and rough for several weeks or even months. After the purulent discharge has ceased, the nitrate of silver solution should be discontinued and in its place may be used the alum stick as recommended on page 352.

Iritis—This is an inflammation of the iris and is usually found in connection with rheumatism or some debilitating general disease, although it may be seen in cases where no cause can be traced. Exposure to inclement weather may be the cause in some instances. It is also seen as a complication in wounds of and injuries to the eyeball and accompanying deep corneal ulcers. These forms are called secondary, in contradistinction to the forms in which no specific cause can be traced, where the disease is known as primary.

Symptoms and Signs—The first symptom generally noticed is more or less intolerance of light with an increase in the flow of tears. Very soon the eyeball becomes reddened, the congestion being greater in that portion of the eyeball lying immediately around the cornea or clear part; here the redness is seen to be deep-seated and of a darker color than that in the surrounding parts. Where the redness becomes pronounced the patient experiences much pain; at first the pain is of a sudden shooting character, but this quickly changes to a deep-seated throbbing ache, felt chiefly in the region just above the eyebrow, but often radiating over the whole side of the head. In addition to the redness and the pain, there is more or less disturbance of the vision, beginning at first as a slight cloudiness or haziness as though one were looking through smoke or fog; this increases

until in many cases the vision may be reduced to mere perception of light. The cause of this decrease in vision is an exudate of a cloudy material which is thrown out into the aqueous humor of the eye. One of the chief diagnostic symptoms as well as one of the greatest dangers of iritis is the contraction or narrowing of the pupil. In iritis the pupil is always smaller in diameter than normal, and is immovable, that is, it does not dilate and contract under varying degrees of light, and there is a tendency to the formation of adhesions between the margin of the pupil and the lens which lies just behind it. The formation of these adhesions which bind down the iris and prevent the pupil from dilating is the condition which makes iritis so dangerous and which causes blindness in those cases which are not properly treated.

Treatment—Wherever possible, any case of eye disease in which iritis is suspected should be immediately placed in the hands of a competent oculist. Should such an oculist be not available, the treatment should be directed along two lines: first, the reduction of the inflammation and the relief of the pain, and second, the dilation of the pupil and the prevention of adhesions. For the reduction of the inflammation nothing is so beneficial as the application of hot water. Two or three thicknesses of flannel or a layer of absorbent cotton should be squeezed out of water as hot as can be borne and applied directly over the eye; this should be repeated as often as the compress becomes cooled. As the pain in iritis is generally worse at night it may be necessary in extreme cases to give a general sedative—one tablet No. 25 repeated every half hour until the patient rests or until four tablets have been given. This should be done when application of hot water does not relieve the pain sufficiently to enable the patient to sleep and obtain the necessary rest.

To dilate the pupil and prevent the formation of adhesions the only reliable remedy is the following receipt which can be obtained from any first-class druggist: Atropia sulphate (Merck's) 5 grains; acid boric, 10 grains; aqua distilled, 1 ounce. Mix thoroughly and drop one or two drops in the eye every two hours. If this treatment is begun sufficiently early, before the adhesions have become firm, they will be broken up, the pupil dilated and the danger removed. The eye will make comparatively rapid recovery and no permanent bad results remain.

The drops recommended above contain atropine or belladonna and are poisonous, hence care should be exercised in handling them and they should be kept out of the reach of children. When the necessity for their use has passed, they should be thrown away. Used for such cases and in the manner directed above they are perfectly safe.

When the patient is known to have a rheumatic tendency, give one tablet No. 37 every three hours during the daytime until all inflammation of the eye has subsided.

Cataract—Cataract is that condition in which the crystalline lens of the eye loses its natural transparency and becomes clouded and of a milky-white color. The normal crystalline lens lies immediately back of the pupil, and owing to its perfect transparency, is invisible and the pupil looks perfectly black. When cataract develops, however, the pupil changes color and looks perfectly white. Cataracts are of two kinds: primary and secondary. The primary are those which develop from natural causes, generally the result of disturbance in the nutrition of the lens, causing a loss of its vitality and consequently the development of opacity. This form is by far the most common and is called senile cataract since it is, as a rule, confined to old people or those past middle life in whom senile changes are more liable to occur in the various tissues of the body. The senile form comes on very gradually, without any pain or inflammation and usually develops more rapidly in one eye than in the other, often one eye becoming blind while useful vision will still be retained in the other. The patient first notices that objects look dim or hazy, especially when looked at through the eye earliest affected. This condition gradually increases until only perception of light remains, when the cataract is said to be ripe or mature.

Secondary cataracts are those which result either from external violence, such as blows upon the eye, or operations or wounds, in which the lens is injured. Here as a rule but one eye is affected, the other remaining normal unless the violence or injury extends to both eyes. The development of secondary cataract is much more rapid than that of the senile form, often but a few days or weeks being required for the complete formation of the opacity in the lens, while in the case of the senile cataract the develop-

ment is always slow, many cases requiring years for their full development.

Treatment—The only cure for cataract is the removal of the opaque crystalline lens by means of a surgical operation; the so-called absorption methods are entirely worthless in producing a cure in a case of true cataract. The operation for the removal of a cataract is an exceedingly delicate one and should only be performed by a surgeon of skill and experience. When proper skill and care are employed, the results are eminently satisfactory and a large proportion of the operations performed are successful.

Pterygium—This is a condition or alteration in the mucous membrane, covering the eyeball, in which it becomes folded upon itself in such a manner as to form a triangular growth, the apex of the triangle pointing toward the pupil and firmly attached to the cornea or clear part of the eyeball. As a rule the growth is found springing from the inner angle, next to the nose, although it may grow from any point, but always extends toward the pupil, and if left without interference eventually covers enough of the pupillary space to greatly interfere with the sight. The growth is of slow development, as a rule, often reaching a certain stage when growth seems to be arrested and the condition may remain stationary for many years, only to take on, at last, new activity and finally permanently damage the eye.

Treatment—This condition can only be removed by surgical means and none but skilled surgeons should attempt the operation. When properly done the operation is free from danger and is generally very successful. The growths, however, show a marked tendency to recur and often require a second or even a third operation before the recurrence can be checked.

Diseases of the Tear Ducts—The tears flow out from the eye through two small ducts or canals at the inner angle of the lids, one opening being in the upper and one in the lower lid; as these two minute canals pass in toward the nose they unite to form one larger channel which empties into a small cavity lying against the side of the nose called the lachrymal sac; this in turn discharges through a canal or tube extending through the bone down into the nose. Any obstruction or closure of this drainage

channel interferes with the proper removal of the tears from the eye and we have the condition commonly known as "watering" of the eyes. The tears accumulate until they overflow upon the cheek and cause more or less inflammation both of the eye and the skin of the lids. The obstruction may occur at two different points, either in the small canals leading from the outer openings in the lids into the lachrymal sac, or else the obstruction may be located in that portion of the drainage system lying below the sac and between it and the nose. The latter position is the more frequent one and is productive of the greatest disturbance. When this portion of the channel is closed the tears accumulate in the lachrymal sac and cause its distention until it shows as a distinct swelling; in severe cases this swelling may be very great and be attended by much inflammation of the surrounding tissues. The mucous membrane lining the sac becomes inflamed, pus forms in the sac and unless the distention is relieved rupture takes place externally upon the cheek alongside of the nose and an opening remains through which the pus and tears are discharged. The constant presence of pus in the sac and eye results in more or less serious inflammation of the eye itself; often corneal ulcers form and not infrequently the eye is lost from sloughing of the cornea. In most cases, especially during the early stages of the diseases the sac can be erupted by applying pressure upon the outside; when the closure below is not complete the contents of the sac can be forced down into the nose; in other cases it will flow back into the eye and be discharged externally by this route.

Treatment—This is always a serious condition and should be placed in the hands of a reliable oculist as early as possible. The treatment is surgical and consists of opening the canals and dilating the passages with suitable probes until perfect drainage is established.

In some cases, in which there are deformities in the bony canal below leading into the nose, perfect drainage may be difficult or even impossible to obtain, and often after it is obtained relapses occur and the case may become incurable. When proper attention is given early in the course of the disease, however, good and permanent results are the rule, and it is in the old neglected or chronic cases that the surgeon finds the greatest difficulty.

THE EAR AND ITS DISEASES.

The structure of the ear may be divided into three portions, first, the sound receiving portion, consisting of the external or visible portion of the ear and the external auditory canal extending down to the drum membrane; second, the sound conducting portion made up of the drum membrane the middle ear cavity, with the chain of three bones articulated together and lying within the cavity and connecting the drum membrane with the inner ear, the hollow space or cavity in the bony process lying back of the ear, called the mastoid process, and finally the eustachian tube which connects the middle ear cavity with the throat; third, the inner or true ear, lying deeply within the dense hard portion of the temporal bone, and consisting of the various cavities throughout which the auditory nerve or nerve of hearing is distributed. In the outer ear or aurical and auditory canal, disease of any gravity is seldom found.

The inner or true ear is very rarely the seat of disease. When disease does occur it is the result of extension of the disease from some surrounding tissue as, for instance, the extension of the inflammation to the inner ear in the case of meningitis or inflammation of the membranes covering the base of the brain. These cases are almost always fatal and treatment is of little or no value. The majority of cases in which total deafness exists at birth are caused by a low grade of inflammation of the base of the brain and its membranes which damages or destroys the auditory nerves before birth.

Boils—These sometimes occur in the skin lining the canal and call for the same treatment as that given to boils in other localities, namely, hot applications until the boil shows signs of having come to a head, then free incision and removal of the pus. This procedure had best be done by a skillful surgeon as undue violence or awkwardness may injure the drum membrane. In many cases there is a tendency to recurrence of boils

and should they persist, the following preparation should be given internally: Calcium sulphide, 15 grains; sulpho-carbolate of soda, $1\frac{1}{2}$ drams. Mix thoroughly and make into thirty capsules. Take one capsule after each meal. This treatment should be continued for three or four weeks.

Wax in the Ears—In elderly or middle-aged people there is frequently a tendency to hardening of the ear wax, so that it becomes impacted and acts as a plug in the canal causing ringing noises in the ear and a sense of pressure, and in some cases very greatly diminished hearing. The presence of this hardened mass of ear wax can usually be detected by inserting the ear speculum carefully into the canal and holding the patient's head in such a position that the light will fall into the canal. To insert the speculum, grasp the external ear by the upper portion and draw it slightly upward and backward, when it will be seen that the canal becomes straightened and a clear view can be obtained. In a case of impacted ear wax, its removal may be attempted by syringing the ear with warm water. Should the mass not come away when the syringe has been thoroughly used, drop three or four drops of warm olive or sweet oil into the ear and let it remain until the following day when the syringing may be repeated. As a rule the oil will soften the mass so that it may be easily removed by a stream of warm water. In some cases, however, where the mass is very hard it may be necessary to repeat the application of oil several times, using the syringe and warm water between each application of the oil. After the wax has all been removed, the canal should be thoroughly dried and wiped out with a wisp of cotton twisted upon the end of the cotton carrier and then another cotton swab should be dipped in ointment No. 40 and the entire canal thoroughly swabbed out. This application of the ointment to the canal should be repeated every other day for two or three weeks.

THE MIDDLE EAR.

The middle ear is the location in which by far the largest number of ear diseases find their origin and development. The middle ear is directly connected with the posterior portion of the nose

and throat through the eustachian tube. This tube, as well as the middle ear cavity, is lined by mucous membrane which is similar to and continuous with the membrane lining the nose and throat, and any inflammatory process affecting this membrane in the throat may extend to the eustachian tube and through it to the cavity of the middle ear. In fact, nearly all the more common diseases of the middle ear are catarrhal in character and have their origin in a cold affecting, first the nose and throat and then extending to the eustachian tube and middle ear. The mucous membrane lining the middle ear cavity is constantly secreting fluid and mucus and the natural and only means of drainage from the cavity is through the eustachian tube into the throat. Where inflammation of the membrane lining this tube occurs, the accompanying swelling causes more or less closure of the tube and interference with the proper drainage of the cavity, hence, retention of the secretions occurs, and should the obstruction become sufficiently great, the cavity soon fills and then there occurs pressure upon the drum membrane. As soon as pressure occurs there is pain which continues until the pressure is relieved either by the reopening of the eustachian tube and the re-establishment of drainage through the natural channel or else the drum membrane ruptures under the pressure of the enclosed fluid and the discharge occurs externally through the auditory canal. It will be seen that an earache is caused by swelling and inflammation of the eustachian tube and interference with the natural drainage of the middle ear cavity. As soon as the pressure is removed, the pain subsides, but should the drum membrane be ruptured, the discharge may continue for some time, and if neglected may become chronic. The discharge is at first thin and watery containing much mucus and often in severe inflammations it will be bloody. Where exposed to air, however, the discharge rapidly undergoes decomposition and becomes very foul smelling and irritating. In those cases which receive proper attention as regards cleansing the ear, and where the catarrhal condition which causes the trouble is treated, the discharge soon stops and the opening in the drum membrane closes, and recovery with normal hearing results. In other cases which are neglected, the membrane lining the cavity undergoes ulceration, as does the drum membrane, resulting in more or less

destruction of tissue and permanent damage to the ear. There are certain complications, some of them of grave import, which may occur in the course of a suppurative inflammation of the middle ear. The principal one and by far the most dangerous is the development of an abscess in the cavity of the mastoid process of the temporal bone lying just back of the ear. This cavity is lined by mucous membrane which is similar to and connected with that lining the middle ear and should the swelling of the membrane close the small passage connecting the two cavities, suppurative and extensive inflammation of a destructive character is likely to occur in the bone and unless the retained pus and secretions are removed and free drainage established, disease of the bone itself occurs and the inflammation will extend to the brain and its membranes causing meningitis or abscess of the brain frequently resulting in death. The treatment of this condition calls for the most skillful surgery and none but surgeons of experience should attempt the operation for the operation itself is attended with considerable danger; nevertheless where a mastoid abscess develops, an operation should always be performed, as fatality is almost certain to occur without it. Whenever any tenderness or swelling is found over the mastoid process during an inflammation of the middle ear, the best possible surgical advice should at once be sought. In the meantime, the inflammation may best be treated by constant applications of flannels wet in hot water and applied over the parts.

Discharging Ear—First of all cleanliness is of greatest importance and no secretions should be allowed to remain any length of time in the ear. To wash out the ear dissolve one tablet No 3. in a teacupful of warm water and thoroughly wash out the canal using the ear syringe. After thoroughly washing away all matter or pus, twist a bit of cotton on the cotton carrier and wipe the canal dry. Then take two tablets No. 1 and crush them into a fine powder and place the powder in the canal, taking care that it goes well down to the drum membrane. This should be repeated two or three times a day, as long as the discharge continues. In addition to the treatment of the ear itself, the nose and throat should receive attention. The patient should thoroughly wash out the nose by snuffing up considerable quantities of the same fluid which is used to wash out the ear;

he may also gargle the throat with the fluid. This should be followed by thorough use of the spray with the following solution: Oil of cinnamon, 2 drops; carbolic acid, 10 drops; lavo-line, 2 ounces. Mix thoroughly and use as spray.

Earache—Earache is very common in children and as before mentioned is caused by interruption of the normal drainage following the swollen condition of the mucous membrane in the nose and eustachian tubes, so generally found in the case of ordinary colds. The presence of enlarged tonsils or swollen glands in the space behind the palate predisposes to this trouble and where these conditions exist, they should receive proper attention. When earache begins in a child or adult the direct application of heat, in the form of hot water to the ear, will often relieve the pain and congestion. The best manner of applying hot water is to have the patient lie down on the side, with the aching ear uppermost and then fill the auditory canal with water as hot as it can be borne; as soon as the water cools it should be poured out and more hot water introduced, and the process continued. Should the drum membrane rupture and a discharge from the ear occur, the cleansing methods recommended in the case of discharge from the ear should be pursued until all discharge stops.

Progressive Deafness—This condition occurs in many cases as a result of chronic catarrhal trouble involving the eustachian tube and middle ear. The cases occur usually in adults and those past middle life are more liable to be afflicted. The catarrhal trouble is a low, mild form of inflammation, attended by little swelling or increase in secretions, but owing to its prolonged course, the mucous membrane becomes permanently thickened. This thickening process extends into the middle ear and involves the articulations or joints between the chain of small bones lying in the middle ear, resulting in stiffening of the joints. The drum membrane itself becomes thickened and less elastic. The result of the whole process is a condition of the sound conducting structures within the middle ear making them much less sensitive to the delicate sounds which ordinarily produce the sensation of hearing. In other words, the sound conducting mechanism is so altered that it requires a more forcible sound

stimulus than normal to produce the sensation of hearing. The onset of this condition is exceedingly slow and often much permanent damage is done before the sufferer really becomes conscious that his hearing is disturbed. The symptoms noted are those of diminished hearing and noises of various kinds in the ears. Sometimes but one ear is involved, but often both, generally, however, to a different degree. The condition is often affected by changes in the weather, wet damp weather increasing the difficulty of hearing while in warm dry weather the patient may notice but little if any trouble. The hearing is always poorer when the patient has a cold in the head and the noises then become very troublesome. The progress is always slow, so that the patient may from month to month not be able to really note any material change in his condition, but gradually the changes in the tissues become more and more pronounced and the deafness and head noises increase.

Treatment—After this condition has become thoroughly established, especially in middle-aged people, the results of treatment are very unsatisfactory. The best results are obtained in young people when the disease is recognized early in its course and prompt and proper treatment instituted and carried out. When these conditions are noted the case should at once be placed under the care of a skillful specialist in ear diseases and his instructions faithfully carried out. But little can be done in this condition in the way of home treatment.

THE NOSE AND THROAT.

In the part of this book devoted to the general diseases of the body, all diseases of the nose and throat which in any way cause general systemic disturbances, have been fully discussed and it remains to take up those things which belong entirely to the organs named.

The Nose—The nose performs a threefold duty in the human organism. It is the organ of the sense of smell, it gives a certain character and resonance to the voice, and it is the natural passageway through which the external air reaches the lungs. Any one or all of these functions may be interfered with and any interference is usually in the form of some inflammation of the membranes which line the nose. Speaking of the nose as the organ of the special sense of smell, any inflammation which occurs about the tiny endings of the nerves of smell will materially interfere with the function of these nerve filaments. Should an inflammation occur which causes any considerable amount of swelling, or should new or foreign growths occur in the nose, the other functions will be interfered with from the fact that the nasal passage is not free enough to act as a sounding board for the voice nor large enough to admit a sufficient amount of air to the lungs.

Catarrh—There are so many things which are misunderstood in regard to what is ordinarily called "nasal catarrh" that a somewhat general discussion upon certain questions connected with this subject is given here. One of the mistakes is that it is generally believed that catarrh is a special disease of the nasal cavity which leads finally to the ulceration of the soft parts and to the death of the bone. This idea is very largely encouraged by all advertisements of patent medicines which are said to cure catarrh. A simple catarrhal inflammation is always a catarrhal inflammation from the start and never results in anything more than a simple swelling of the parts. Ulceration and the death

of bone are never found in simple catarrh and when these things occur it may be certain that some serious general disease is present, such as syphilis. Another mistaken idea which is very common is that when a person has a catarrhal inflammation in one part of the body, the mucous surfaces in other parts are liable to become affected also. Doctors very often have patients who are suffering from nasal catarrh and these people frequently make the statement that they are suffering from catarrh of the stomach as a result of the catarrh of the nose. There is no ground whatever for such an assertion and in the vast majority of cases the stomach trouble is due to some excess as to manner of living, and it is never due to nasal catarrh. Another very common mistake is to believe that catarrh will eventually develop into consumption; this is entirely untrue and there is no tendency whatever for consumption to follow cases of catarrh. The natural tendency of catarrh is to go downward but the inflammation will always remain catarrhal. The worst thing that could happen would be the development of a chronic case of bronchitis with asthma. A very common idea in regard to catarrh is that its most prominent symptom is the excessive secretion of mucus or muco-pus. This is not at all true as in many cases the actual amount of secretion is less, and in those cases where the secretion is apparently more than normal the character of the secretion has been changed so that instead of being taken up by the air and carried off in this manner it discharges from the nostrils, falls back into the throat or forms solid hard scabs in the nostril. In a healthy nose the secretion is never noticed and yet the amount secreted by a healthy nose is about a pint in every twenty-four hours.

The three most prominent symptoms which give rise to the ordinary catarrh are: swelling and inflammation in the mucous membrane of the nostril, swelling and inflammation of the mucous membrane of the upper part of the throat and a bony growth upon the septum of bone which divides the two nostrils. These three conditions are closely associated in most cases and it is somewhat difficult to tell which one is the real cause of the trouble. The character of the discharge is always something of an indication of the disease with which we have to deal. A purely watery discharge usually indicates a common cold or hay fever; a pro-

fuse discharge in which the discharge resembles the white of an egg but not quite so thick and in which there appears numbers of grayish flakes, indicates nasal polypi. This same discharge is also seen in the second stage of a severe cold. A very thick mucus discharge indicates disease of the upper part of the throat just back of the nostrils; a thick whitish discharge which is raised from the throat with much hawking indicates disease of both the throat and nose; a purulent discharge composed of moderately thick yellow pus, accompanied by an odor, usually indicates disease of some one of the bony cavities near the nose; a purulent discharge in which blood and shreds of dead tissue are mixed indicates syphilis; the discharge of greenish crusts in connection with somewhat healthy looking pus, or thick mucus in connection with a mild offensive odor, the crusts being bright yellow or greenish in color, and containing neither blood nor dead tissue, indicates dry catarrh.

Acute Catarrh—Taking Cold—Although this is one of the most common and familiar of the slight illnesses, yet what especial influences produce the changes which are called taking cold, or what is the true relation between the recognized cause and the effect, it is somewhat difficult to determine. The view of Dr. Seitz is the one most generally accepted and that is, that the disorders resulting from catching cold are due to the removal of heat to an unusual extent from the external or internal surface of the body; that this causes some functional disturbance, which in turn gives rise to certain processes in some portion of the body, far removed from the part immediately affected by the cold. That the changes are not due to the immediate or direct effect of the exposure, is evident from the fact, that as a rule, a certain length of time elapses before these changes set in. This theory is far from complete and leaves the matter still somewhat in the dark. As a matter of observation we know that colds occur during the spring and fall months, seasons which have moderately low temperature, notable dampness of the atmosphere, together with a considerable amount of wind. Hence we recognize that there are three factors necessary for the production of a cold—low temperature, air in motion and moisture. It is also necessary, as a rule, that one or more of these factors should act for a considerable length of time. In our ordinary life there are few of us but

that may subject ourselves to slight temporary exposure without danger, as, for instance, rising in the morning in a cold room. On the other hand, sitting in a draught for a prolonged period with even only a small portion of the body exposed is almost sure to result in the taking of cold.

Among the well known things which may produce a cold are sitting in a draught, wearing insufficient clothing, wearing thin soled shoes, going from a warm room to a cold one, sitting in a cool place when warm, slight exposure while perspiring, etc. There is generally a slight amount of fever present with every cold. The cold manifests itself in various parts of the body and is spoken of as a cold in the head, or it may assume the form of muscular rheumatism, or it may "settle" in the bladder and cause some trouble there. Nearly always, however, the upper air passages are affected and repeated attacks of cold in these parts eventually produce a condition which is to a certain extent permanent, and we speak of the trouble as catarrh. Some people state that they take cold very easily and very often. Were they to be carefully examined it would be found that they have a mild form of chronic catarrh and the slightest exposure brings on an acute attack.

Prevention of a Cold—From what has already been said it is easy to see that a cold may be prevented by avoiding those things which produce it and the best methods of avoiding those things will be considered. The most care is required in the spring and fall of the year. One of the most important directions that can be given in regard to preventing colds is as to the proper regulation of the clothing. The body should have sufficient clothing for warmth and comfort, no more and no less. A frequent and common error in the use of clothing is of crowding on too much clothing upon those portions of the body which are supposed to be subject to some special weakness; as for instance, many people, supposing themselves to have weak lungs and throats, fall into the error of piling wrap after wrap around their necks and upon their chests, thereby encouraging the very condition which they fear, and incurring the risk they desire to avoid, for the excessive muffling of the parts necessarily leads to perspiration and consequently the danger of its being suddenly checked upon the removal of the wraps. The habit of muffling up the neck

is the source of much mischief and much harm is done by this procedure. Especially is this the case when the cold which is contracted develops into sore throat. As a rule when a sore throat comes on, the first thing that is done is to tie a piece of flannel about the throat; the only advantage of this is a certain amount of counter-irritation due to the flannel rubbing against the skin. It is put on for a protection; it simply renders the throat more sensitive, and more liable to take another cold. What has just been said about the neck may be said about any other portion of the body. There could be no greater error than to suppose that mufflers about the neck protect the throat, or that the chest is protected in any way by extra thickness of covering about it. In fact the contrary is quite true. The worst place in the world in which to wear the so-called chest protectors, sold in the drug stores, is on the chest. It would be much better to wear them on the feet as the chest is much better protected, in one liable to colds, by an extra sole worn on the boot than by a felt pad worn across the chest. The clothing should be uniformly distributed over the body, with simply enough of it for comfort and no more. Wool is the best material for underclothing and silk should never be worn. Many people change the thickness of the underclothing twice or even three times a year but this plan is not a wise one as the houses in which we live are at practically the same temperature the entire year. A much better plan is to wear the same thickness of underwear throughout the year, and supply protection from the extreme cold of winter by a change in the outer garments. The body is protected from absolute cold by wearing clothing, but not from taking cold. The protection from taking cold is, by so regulating the habits of life as regards clothing, etc., that exposure to the changes of the weather can be made without fear. In other words, compel yourself to become thoroughly accustomed to a climate and to its changes; perhaps no better aid to this is afforded than the use of the bath. A cold bath or a cold sponge bath is a great aid in the prevention of taking cold if the bath is taken regularly every day.

Treatment—Ordinary colds are commonly allowed to take their course without treatment, and this very thing of allowing a cold to take its own course produces a weakening of the parts affected

by the cold and they are less able to withstand the next attack. The ordinary treatment of a cold is so simple and requires so little time that a cold, no matter how slight, should always be treated. At bedtime take a hot footbath and at the same time drink a large quantity of some sort of hot drink, as a bowlful of hot lemonade; then take four tablets of No. 39, go to bed and cover up warmly. If a free perspiration is induced it is so much the better. On arising in the morning take three tablets of No. 16 and after breakfast begin and take two tablets of No. 39 every three hours until the cold is cured. The points to remember in the cure of a cold are: Bring the natural body warmth back by hot drinks, by hot baths, or by placing the patient in bed with hot water bottles or hot bricks about him; open the bowels thoroughly by the use of No. 16 for adults and by the use of No. 4 for children; and overcome the cold by giving to children one tablet of No. 39 every three hours, and to adults two tablets No. 39 every two to three hours. In addition to this treatment, spray the nose several times each day with a solution made by dissolving from one to five tablets of No. 3 in one-half a cupful of warm water.

Chronic Catarrh—This is a somewhat general term and includes a number of diseases which are entirely separate and distinct from each other.

Hypertrophic Rhinitis—Moist Catarrh—This is the name given to that form of chronic catarrh which is the result of frequent attacks of acute catarrh, or, in other words, it is that form of catarrh which follows the repeated taking of cold. It is defined as a chronic inflammation of the mucous membrane lining the nasal cavities, which inflammation produces enlargement enough of the parts to interfere to a considerable extent with the free passage of air through the nostrils. One reason why this enlargement takes place with but a moderate amount of irritation is the fact that more blood passes through the mucous membrane of the nose in twenty-four hours than through any other mucous membrane of the body during the same length of time.

Symptoms and Signs—In this form of catarrh the discharge becomes less in amount and somewhat thick. It has a tendency to fall back into the throat and will be raised by a considerable

amount of hawking. There is no tendency for the discharge to form crusts and there is no odor to the discharge. It is a popular delusion that the secretions in this form of catarrh have an odor and are irritating and this belief is based partly on the teachings of some who claim that catarrh leads to ulceration and death of the bone. These beliefs are entirely wrong and death of bone is never found in any sort of catarrh, and the bad odor is found in dry catarrh alone, where there is no discharge. Mouth breathing is always a prominent sign of this disease and this is produced by the closure of the nostrils by the enlargements which accompany the disease. This inability to breathe through the nose allows the secretions of the upper part of the throat to accumulate, and these form into hard masses, especially at night, and in the morning require considerable hawking and retching to raise or loosen the plugs; sometimes this retching will produce vomiting. This difficulty, while not a disease in itself and while produced entirely by the nasal catarrh, will in time produce disease of the upper part or vault of the throat. Ear trouble is very often met with in this form of catarrh, and this trouble may be only a ringing in the ears or there may be considerable difficulty in hearing. The hawking which is practiced in order to raise the mucus which accumulates in the upper part of the throat will many times produce a lengthening of the hanging palate and this falling on the base of the tongue will cause an irritation which will produce much coughing. This form of catarrh is very often the starting point of hay fever and asthma. Other troubles which may be caused by this form of catarrh are headaches, eye troubles of various kinds, and a large number of nervous diseases.

Treatment—This disease has been described as a thickening of the nasal mucous membrane and as a thickening of the secretions of this membrane, therefore, in treatment of the disease three things should be accomplished: the surface of the membrane should be kept clean, the membrane should be stimulated to more natural action, and astringents should be used to bring the membrane back to its natural state. The membrane is kept clean by spraying several times a day with a solution made by dissolving three tablets of No. 3 in a pint of warm water. The stimulant and astringent action is produced by the use of the following: Tannic acid, 10 grains; tincture of iodine, 10 drops; glycerine,

1 ounce. Mix thoroughly, and allow to stand twenty-four hours. To use this, twist a small piece of cotton about a cotton carrier or a long splinter, then saturate the cotton with the mixture and pass the swab well back in each nostril. Always spray the nose after making this application; use the medicine once or twice every day and use the spray four or five times a day. Continue the whole treatment from two to six months. By being faithful and persistent in this treatment all ordinary cases of catarrh of this sort can be cured in time.

Purulent Catarrh of Childhood—This is a form of catarrh which occurs in childhood alone and which is accompanied by a profuse discharge of a yellowish, pus-like material. The disease does not manifest itself in any other way. The nose keeps up a continual discharge and unless carefully looked after the child becomes what is known as a "dirty-nosed" child. The matter interferes with the child's breathing somewhat and may cause mouth breathing especially at night. There is no obstruction of the nasal passage except as a result of the accumulation and drying of the secretion.

Treatment—Treat this disease by the same method as that given for the treatment of hypertrophic rhinitis,

Atrophic Rhinitis—Dry Catarrh—This is that form of chronic catarrh in which the membranes of the nose shrink up and in this way lose the power of performing their function in the proper manner. This shrinkage of the membrane lessens the amount of liquid secretion, and, as a result, crusts form upon the membrane and these in turn interfere with the flow of the blood in the veins and also prevent the escape of the discharge. As a result of holding the discharges in check, they accumulate back of the hard crusts and decay to a certain extent and thus produce an odor so that one of the prominent symptoms in this form of catarrh is a very free breathing space and a decided odor to all of the discharge from the nose. Nosebleed sometimes occurs in this form of catarrh as a result of picking the crusts off with the finger nail. Sometimes this is kept up for so long a time that a small hole is made in the bone which divides the nostrils. As a result of the air not being moistened to any extent on its passage through the nose it takes up a great amount of moisture from

the throat and one of the prominent signs of dry catarrh is a very dry throat.

Treatment—Three times each day spray the nose and throat with the following: oil of cinnamon, 2 drops; carbolic acid, 10 drops; lavoline, 2 ounces; also twice a day with a solution made by dissolving six tablets of No. 3 in a cup of warm water. Dissolve two tablespoonfuls of salt in two quarts of hot water and place the solution in the fountain syringe. Take the nozzle off of the syringe and hang the syringe a very little higher than the head; place the end of the rubber tubing in one nostril, open the mouth slightly, tip the head a little bit forward and allow the solution to run through the nose. Have the water as hot as can be borne. Do this once each day. In addition to this treatment, have the following made up and use it three times a day by snuffing a small portion up the nose: Salicylic acid, 5 grains; calcined magnesia, 1 dram; mix thoroughly and use as directed.

Deformities of the Nasal Septum—The septum is the bone which divides the two nostrils from each other. In infancy this bone many times receives severe blows, and, as a result of such blows, various deformities develop later on in life, the most common of these being a growth upon one side of the partition. This growth may be but a small bulging of a portion of the septum or it may be so extensive as to entirely close the nostril and thus prevent the air from passing to the lungs through that nostril. At other times a growth occurs on both sides and it is then not possible for the air to reach the lungs by way of the nostrils at all, and the person so afflicted is a confirmed mouth breather. Whenever a deformity of the nasal septum is found there is sure to be more or less swelling of the mucous membrane upon the outer side of the nostril and a chronic catarrh is the result. Deflections or growths upon the septum can be treated in but one way with any degree of success and that is by having a competent surgeon operate upon the nose and remove all bunches and enlargements of whatever sort which occur upon this bone. Such operations are very successful, can be performed with little or no pain and give a great amount of relief. In fact many severe cases of catarrh may be cured by an operation of this sort and by using a solution of No. 3. in the spray for a short time afterwards.

Foreign Bodies in the Nose—Foreign bodies are many times found in the nostrils; sometimes they get there by accident and many times they are put there by mischievous children. A child will frequently be playing with some small article and will stuff the article up one nostril or some article will be swallowed, and in the act of vomiting, instead of being thrown out the mouth, the article will be thrown up into the back part of the nose where it will lodge. As soon as a foreign body is placed in the nostril it sets up a certain amount of irritation and this in turn produces swelling and a very free discharge. This discharge soon becomes thick and it will not be long until it becomes quite offensive, so that one of the early signs of a foreign body in the nostril will be a free and offensive discharge. There will also be a certain amount of sneezing and it will be difficult to breathe through the side which contains the foreign body. The sense of smell is not affected by the presence of a foreign body in the nostril. A neuralgia of some part of the face is many times present and this is many times a very distressing symptom. The discharge from the nose may cause the upper lip and a portion of the nose to become quite sore. This is especially true in children.

Treatment—The only treatment is the removal of the foreign body and this had best be undertaken by a competent physician.

Tumors of the Nose—A number of growths may occur in the nose. In fact, any tumor which may occur in any other part of the body may occur in the nose. The tumor most often met with is the soft tumor which is known as nasal polypi. This tumor looks very much like a grape from which the skin has been removed. It is soft, has a watery look, is somewhat greyish in color, the covering shines or glistens and the tumor is fastened to the nose by a small neck or pedicle. A single nostril may contain one or a dozen of these tumors. They interfere with the breathing and also with the free discharge of the secretions of the mucous membrane of the nose. There is only one treatment for this trouble and that is to remove the tumors. This is best done with a wire snare and as the treatment is in the line of an operation the best advice that can be given is to take the sufferer to a specialist and have the matter attended to. This may be said of any tumor which may occur in the nose.

THE THROAT.

Perhaps no part of the body is the seat of more small troubles than the throat. From earliest infancy the throat is a source of care and oftentimes of very serious worry. The years of childhood are filled with times when the throat gives more or less trouble and although in the majority of cases this trouble is in no wise serious yet the fact remains that a little carelessness as to the care of the throat at this period of life is almost sure to result in a weak throat. The most common trouble is, of course, catarrh, and the various forms of throat catarrh are much the same as those forms found in the nose. Aside from catarrh of the throat, many diseases occur which affect the throat in some way and tumors of the throat occur much the same as in other parts of the body.

Acute Catarrh of the Throat—Acute Pharyngitis—

In taking cold it is sometimes said that the cold settles in the head or nose, and this is the acute catarrh which has already been described under the head of nasal catarrh, but if the cold should settle in the throat, the disease would be acute catarrh of the throat. The symptoms are those of a severe cold; the throat is very red and inflamed, feels sore; there is profuse discharge of saliva; there may some difficulty in swallowing and there is often a general sick feeling. The trouble is not hard to recognize and every mother of any experience is quite familiar with this form of throat trouble.

Treatment—This form of sore throat is more common in children but may occur in adults. The person takes a cold and it is noticed that the throat is somewhat sore. Upon examining the throat, it is seen to be red and the blood vessels stand out clear and distinct. The throat is much congested and the first thing to be thought of is the removal of the congestion. To do this, dissolve three or four tablets of No. 12 in a teacupful of hot water and gargle the throat with this every hour; in addition spray the throat every three hours with a solution made by dissolving four tablets of No. 3 in a teacupful of hot water. No other treatment will be necessary.

Chronic Catarrh of the Throat—Chronic Pharyngitis—The same thing that is true in nasal catarrh is equally true in catarrh of the throat—if the acute catarrh is not treated but is allowed to get well without treatment, and this occurs time after time, it will not be a great while until the inflammation will not leave during the intervals between the attacks, and the disease is then chronic, or, in other words, the patient now has chronic catarrh of the throat. Some signs which will aid in recognizing the chronic disease are here given. The throat is raw most of the time and feels sore and disagreeable; the mucous membrane is covered most of the time with a thick mucus; much time is spent in the morning in clearing the throat; the matter raised in the morning is thick and stringy or in hard, scab-like pieces; a cough is very often present; the breath is very offensive at times, and the patient is in rather poor health most of the time. The conditions are very common, and although they may vary somewhat from this description, the trouble is not hard to recognize as it is a disease which is present all of the time and differs from the acute form only in the fact that it is more severe.

Treatment—In the treatment of this form of catarrh, the first thing to be looked after is that the parts be kept clean and free from irritating discharges at all times. To accomplish this, gargle the throat three times each day with a solution made by dissolving three tablets of No. 3 in a teacupful of water. Having thoroughly cleansed the parts, stimulate the weak glands to normal action, strengthen the tissues in general and use a remedy which will cause any parts which are swelled to shrink up; in other words, use a stimulating astringent and such a remedy is here given: Tincture of iodine, 10 drops; tannic acid, 15 grains; pure glycerine, 1 ounce. Mix thoroughly, allow to stand for twenty-four hours, apply to the throat twice a day with a swab, and rub gently, but for a considerable time. In this treatment the rubbing will count for much and should be done carefully, regularly, and without using too much force.

Follicular Pharyngitis—There is a form of chronic throat trouble which is known by this name. This form is not produced by the continued taking of cold, but is a disease in itself. In this disease the throat has the appearance of a piece of

raw beef with the exception that all along the back of throat may be seen little bunches from the size of a pinhead to that of the half of a pea. These little bunches will be seen to be composed of mucous membrane and are quite firm and solid. They bleed quite easily, are covered with a thick glairy mucus, cause much irritation in the throat, and cause the spitting of small amounts of blood. The secretions of the throat are made less moist by them and as a result the throat will be filled with scabs of dry mucus in the morning when the patient awakens. During his waking hours the patient will be hawking and trying to raise the tenacious mucus much of the time. The conditions here described are often met with and if on looking into the throat the little bunches which have been described are found, there need be no doubt as to the disease.

Treatment—Cleanse the throat many times each day by spraying with a solution made by dissolving three tablets of No.3 in a half teacupful of water. Immediately after each cleansing, spray the throat with some mild oil such as liquid vaseline or lavoline. Once each day carefully swab the throat with the following: Argentum nitrate, 10 grains; aqua distilled, 1 ounce. Mix thoroughly, shake the bottle each time before using, keep the bottle in the dark when not in use and be careful not to touch the skin with any of the solution. It will not do any particular damage but will turn the skin so touched black, and this color will remain for some time.

Inflammation of the Uvula or Hanging Palate—This affection of the uvula and diseases of the tonsils in general have already been described in this book and may be found under their respective heads.

Acute Laryngitis—The large cartilage which may be seen and felt in the throat just under the chin and which is often spoken of as "Adam's apple" is known to medical men as the larynx. The larynx acts as a passageway for the air and is also the place where the voice originates. Inclosed within its walls are some very delicate structures and diseases of these structures sometimes occur, the most common of these being acute laryngitis. By acute laryngitis is meant an inflammation of the mucous membrane which lines the larynx, which inflammation is acute and

is accompanied by an extra supply of blood to the part, a moderate amount of swelling and a very slight increase in the secretions. This disease is not a serious one and the patient will always recover, but it is a very disagreeable affair, as the voice is always affected and many times is lost entirely. This loss of the voice need not mean any serious trouble, however, and in acute laryngitis is "only a temporary loss, the voice eventually returning with its full vigor. It is nearly always true that when acute laryngitis is found there is some trouble with the balance of the throat or with the nose, and it is rare indeed that a laryngitis occurs alone. Hence, recurring attacks of hoarseness, with loss of the voice, should always call attention to the probable existence of some diseased condition of the throat above. This disease is sometimes caused by inhaling irritating vapors such as chlorine, iodine, ammonia, sulphur, etc., or from breathing tobacco smoke or dense smoke of any kind. Overuse of the voice in public speaking, singing or shouting may also bring on an attack of acute laryngitis. Men are more liable to attacks than women, simply from the fact that they are more exposed to colds and more often are sufferers from some form of chronic catarrh.

Symptoms and Signs—The most common sign is the hoarseness of the voice, which may later on be lost entirely. The complete loss of the voice is rare, however, and cases are seldom met with where some sort of sound cannot be made if sufficient effort be made. Where loss of the voice does occur it is due to the swelling of the vocal cords; they become so thick as to be unable to produce sound when the air is forced against them. Patients with this trouble usually speak in a whisper, as speaking out loud requires quite an effort. There is nearly always a cough present and this is such a cough as is seen when an effort is made to throw some foreign substance from the throat. The cough is not very troublesome, however. There is usually some soreness about the throat, but actual and severe pain is rarely present. Occasionally there is some loss of appetite and some headache but these things are rare.

Treatment—First carefully spray the throat with a solution made by dissolving three tablets of No. 3 in a half teacupful of water. While using the spray, draw the breath in that the spray mixture may reach the diseased parts; follow this with the follow-

ing: Chloride of zinc, 5 grains; distilled water, 1 ounce. Mix thoroughly and use as a spray in the same manner that No. 3 was used. Once every two hours inhale the steam from a teakettle of boiling water; place a few drops of any one of the following in the water before beginning to inhale: Compound tincture of benzoin, camphor, oil of tar, creosote, oil of eucalyptus, oil of turpentine, or oil of peppermint. The use of No. 31 will give a certain amount of relief in cases of this sort. To use the remedy place one tablet on the tongue and allow it to remain there until it dissolves. This may be repeated every half hour or every hour.

Chronic Laryngitis—By this is meant a chronic inflammation of the mucous membrane lining the cavity of the larynx and which is catarrhal in character. A very great many people suffer from this affection and are not caused any inconvenience whatever by its presence. In fact, when this trouble is chronic, it is quite mild and gives rise to but a small amount of discomfort. To the public speaker or the professional singer such an affection is a source of constant annoyance and trouble. Chronic laryngitis is many times caused by chronic diseased conditions of the passages above the larynx. The disease is also produced by the constant breathing of irritating dusts and such persons as millers, workers in tobacco factories, and those engaged in like industries are liable to have this trouble.

Symptoms and Signs—The most prominent symptom is some trouble with the voice. This is not usually noticeable in the ordinary use of the voice but should the patient attempt to use the voice for a short time under a strain, a very pronounced hoarseness will be noticed. The voice will be quiet clear in the morning and will gradually grow more hoarse until at evening a very considerable hoarseness will be noticed.

Treatment—First see that all of the passages above the larynx are in a healthy condition, as this disease in many cases depends upon some diseased condition of the upper air passages. Use the spray with No. 3 as directed in acute laryngitis; once each day spray the throat with a solution made by dissolving five grains of sulphate of zinc in one ounce of distilled water, and several times each day spray the throat with the following: Beechwood

creosote, 15 drops; oleate of strychnia, 5 drops; eucalyptol, 120 drops; lavoline, 2 ounces. Mix thoroughly and use as spray.

Foreign Bodies in the Air Passages—The entrance of a foreign body into the lower air passages may give rise to more or less grave symptoms, according to the size, character and location of the foreign body. A great many articles, such as pins, coins, particles of food, peas, beans, and, in fact, an almost endless number of things, may make their way into the breathing tract during the act of breathing, chewing or swallowing. These articles find their way into the passages in a great many ways, but once being lodged it is no trouble to recognize the difficulty.

Treatment—If a foreign body should become lodged in the air passages of a child, immediately turn the child head downward and by spanking cause the child to cry lustily. This will many times dislodge the object. If it does not, try jerking the child while the head is down. This, however, must be done with some care that the child be not injured in any way. These means failing, an attempt may be made to reach the object with the finger. Grasp the tongue with a towel and pull it well out, then insert a finger which has been previously well oiled and endeavor to loosen the object; it is well to do this while the child has the head lowered. Should these methods fail, a physician had best be called, or a physician may be sent for while these things are being tried and when he comes he can operate if necessary. In the treatment of adults the same process is followed as nearly as can be. Vomiting will often dislodge a foreign body.

Spray Mixtures—Below are given a few spray mixtures and some of the uses to which they may be put.

Beechwood creosote, 15 drops; oleate of strychnia, 5 drops; eucalyptol, 120 drops; lavoline, 2 ounces.

Mix thoroughly and use as a spray in all cases of severe bronchitis or in any case where consumption of the lungs may be feared.

Eucalyptol, 3 parts; oil of tar, 3 parts; lavoline, 96 parts. Mix thoroughly and use as spray in any sort of purulent discharge from the nose.

Camphenate of cocaine, 10 parts; oil of gaultheria, 2 parts; lavoline, 98 parts. Mix thoroughly and use as a spray in irritated conditions of the nose such as hay fever.

Eucalyptol, 10 parts; guaiacol, 10 parts; menthol, 4 parts; thymol, 2 parts; oil of caryophylli, 1 part; lavoline, 973 parts. Mix thoroughly and use as a spray in any sort of nose or throat catarrh.

Salol, 30 parts; menthol, 4 parts; lavoline, 966 parts. Mix thoroughly and use as a spray in acute inflammations of the throat.

These receipts together with the solution of No. 3 as directed will be all that will be required in any case of nose or throat trouble.

THE REMEDIES AND THEIR CONTENTS.

Note—In each case following, the average adult dose of the remedy is given unless otherwise noted. The dose for children of various ages may be determined by the use of the dosage table found on page 224.

No. 1. Boracic Acid. This remedy is used principally externally as a wash. The adult dose is one tablet. Is used internally as an antiseptic for the intestinal and urinary tracts.

No. 2. Sodium Bicarbonate. The adult dose is one tablet every four to six hours. Is used in indigestion whenever the stomach is acid.

No. 3. Sodium Bicarbonate, Sodium Borate, Sodium Benzoate, Sodium Salicylate, Sodium Chloride, Eucalyptol, Thymol, Menthol, Oil of Gaultheria. This is not used internally, but is used externally as an antiseptic cleansing wash; is used in catarrh of the nose and throat, and as an injection in female diseases.

No. 4. Magnesium Sulphate. The adult dose is from one to ten tablets. Is used as a saline cathartic and is given in diarrhea to cleanse the bowels.

No. 5. Sodium Biborate. The adult dose is one tablet. Is used for indigestion and diarrhea in infants and is also used to correct acidity of the stomach.

No. 6. Ferrous Carbonate, Extract Nux Vomica. The adult dose is one tablet before each meal. Is used as a general tonic.

No. 7. Potassium Bromide. The adult dose is one to ten tablets. Is used to quiet nervousness and to combat sleeplessness.

No. 8. Powdered Nux Vomica, Pure Pepsin. The adult dose is one tablet after each meal. Is used as a digestive and as a tonic.

No. 9. Hydrargium Chloride Mite, Sodium Bicarbonate. This remedy is used most often for children; the dose, however, is the same for all ages. It is one tablet every hour until the bowels move freely. Is used as a purgative.

No. 10. Zinc Phosphide, Extract Nux Vomica, Extract Cannabis Indica. The adult dose is one tablet three times a day before meals. Is used as a nerve tonic and to produce sleep.

No. 11. Tincture Aconite, Tartar Emetic, Powdered Ipecac, Codeine Sulphate. The adult dose is one tablet every one, two or three hours as required. The dose for children above the age of ten is the same. For children younger than ten use the regular child's dosage table on p. 224.

No. 12. Potassium Chlorate. The dose of this drug for adults and children is the same—one tablet dissolved in the mouth every two or three hours. Is used for sore throat.

No. 13. Acetanilid. The adult dose is one tablet every two to four hours. Is used for fever, headache, neuralgia, etc.

No. 14. Salol. The adult dose is one tablet every two to three hours. Is used to reduce fever, as an intestinal antiseptic in acute diarrhea, dysentery and cholera; is used in diseases of the bladder, in acute rheumatism, etc.

No. 15. Powdered Ipecac, Powdered Opium, Camphor Gum. The adult dose is one to three tablets every three or four hours. Is used to produce quiet, stop pain, and to start the kidneys.

No. 16. Aloin, Belladonna Podophyllin, Extract Nux Vomica. The adult dose is from one to four tablets. Use enough to produce the desired effect. Is used as a cathartic and bowel tonic; is especially useful in chronic constipation.

No. 17. Reduced Iron, Arenous Acid, Extract Nux Vomica. The adult dose is one tablet after each meal. Is used to aid digestion and as a general tonic.

No. 18. Tartar Emetic. The dose for children is one tablet every ten to fifteen minutes until vomiting is produced. Is used to produce vomiting in children whenever such a thing is desired.

No. 19. Nickel Bromide, Codeine Sulphate, Lithium Carbonate, Powdered Ipecac, Oil of Anise. The adult dose is one or two tablets every fifteen minutes until the patient is quiet. The same dose may be given to children eight years old and over; for younger children use the dosage table on p. 224. Is used for colic, stomachache, restlessness, etc.

No. 20. Bismuth Subnitrate, Powdered Ipecac, Powdered Opium. This remedy is for infants and young children. The dose is one tablet every two to three hours until the bowels are checked. Is used to check and control diarrhea in children.

No. 21 Santonin, Podophyllin. This remedy is for children. The dose is one tablet every hour until the bowels move. Should the child be very young, give one tablet every two hours. Is used to remove round worms from the intestinal tract.

No. 22. Antimony Sulphuret, Powdered Ipecac. The dose for both children and adults is one tablet every ten to fifteen minutes until vomiting is produced. Is used in cases of spasmodic croup.

No. 23. Ammonium Chloride, Extract Hyoscyamus, Tartar Emetic. The dose for adults and children above the age of twelve is one tablet every three to four hours; for younger children use the dosage table on p. 224. Is used for the relief of cough.

No. 24. Arsenous Acid, Potassium Bicarbonate, Tincture of Lavender. The adult dose is: begin with one tablet three times a day before meals and add one tablet to each dose each day until ten tablets are being taken. Should the use of the remedy be stopped, and it is desired to start it again, start with one tablet three times a day and work up again. Is useful in some forms of skin diseases, is very useful in patients just recovering from attacks of la grippe, and is used as a nerve tonic.

No. 25. Powdered Opium. The adult dose is one tablet every hour, if necessary. Is used to stop pain, to produce rest and to check diarrhea.

No. 26. Extract Licorice, Camphor, Benzoic Acid, Oil of Anise, Powdered Opium, Tartar Emetic. The adult dose is one tablet dissolved in the mouth every hour or two. The dose for

children is from one-fourth to one-half tablet used in the same manner. Is used for cough and is especially good for a cough which is not severe but rather irritating, or, as it is commonly called, a "tickling" cough.

No. 27. Quinine Sulphate. The dose of this remedy varies from one tablet every hour to one tablet three times a day before meals. The dosage is given in the body of the book and the use of the drug is so well understood by every one that there is no danger but that it will be used correctly. The average adult dose is one tablet every two hours. Is used in malarial and other fevers, and also as a general tonic.

No. 28. Tincture Digitalis, Tincture Strophanthus, Tincture Belladonna, Nitroglycerine. The adult dose is one or two tablets every two hours. Is used as a stimulant for the heart.

No. 29. Powdered Opium, Camphor Gum. The adult dose is one tablet and this remedy is not used for children. Is used to check diarrhea and tablets are given one or two hours apart.

No. 30. Acetanilid, Camphor Monobromate, Citrate of Caffeine. The adult dose is one tablet every hour until relieved. Is used for headache and neuralgia.

No. 31. Benzoic Acid, Camphorated Tincture of Opium, Tincture Belladonna, Extract Licorice. The dose for all persons above the age of twelve years is one tablet dissolved on the tongue every three to four hours. For younger persons use the dosage table on p. 224. Is used in all form of sore throat.

No. 32. Emetine. This remedy is not to be used for children. The adult dose is one tablet every ten to fifteen minutes until vomiting is produced. Is used when it is desired to produce vomiting in an adult for any reason whatever.

No. 33. Pure Pepsin, Diasase, Extract Nux Vomica, Powdered Ipecac. The adult dose is one tablet three times a day after meals. Is used to aid digestion and to stimulate the natural secretions.

No. 34. Powdered Opium, Camphor, Powdered Ipecac, Lead Acetate. The adult dose is one tablet every hour until five doses have been given, then one tablet after each loose movement from the bowels. Is used to check and control diarrhea.

No. 35. Zinc Phosphide, Strychnia Sulphate, Extract Cannabis Indica, Sodium Arsenate, Aconitine. The adult dose is one tablet every one to four hours. Is used in neuralgia of any sort.

No. 36. Salycilic Acid. The adult dose is one or two tablets every two hours. Is used in muscular and inflammatory rheumatism.

No. 37. Resin Guaiac, Extract Poke Root, Potassium Iodide, Colchicine, Digitalin. The adult dose is one or two tablets three times a day after meals. Is used for muscular and inflammatory rheumatism.

No. 38. Corrosive Sublimate. This is a violent POISON and is not to be taken internally at all. Is used to make antiseptic solutions for the cleansing of wounds, etc.

No. 39. Quinine Sulphate, Dover's Powder, Powdered Capsicum, Tincture Aconite. The adult dose is one to three tablets at night and one tablet every three hours during the day. Is used to break up a cold and will be found to be a very valuable remedy if used as directed.

No. 40. Iodoform, Vaseline. An ointment used for all cuts, burns, scalds, bruises, and wherever a healing ointment is desired.

No. 41. Vaseline. Used as No. 40.

No. 42. Carbolic Acid, Vaseline. Used as No. 40.

INDEX OF SYMPTOMS.

As an aid in diagnosing disease, the following short index of symptoms is presented. It is very easy to recognize one sign or symptom, but it is often quite difficult to place the various symptoms in the order in which they may be used to determine the disease.

Before attempting to use the index of symptoms, carefully read the chapter on "Observation of Symptoms" on page 142, and the section on "Symptoms and Diagnosis or Naming the Disease," on page 216. These will call your attention to the points to be observed. Having by careful observation determined the symptoms present, you are ready to proceed. In the Index, turn to the most prominent symptom discovered, and note the various pages referred to under this symptom. By turning to the pages referred to it will be easy to determine upon which page most of the symptoms are found.

The same result may be obtained by noting all the symptoms present, and by turning to the index, making a list of all the pages given under each symptom. Turn to those pages first which are found the greatest number of times in the lists, and carefully read the description of the disease and all the symptoms there given. If this does not discover the disease, select other pages in the same manner until the desired result is obtained. For example, a person is suddenly taken sick and vomits violently, has a chill followed by a high fever, the throat is sore and inflamed. Turn to the headings, chill, followed by high fever, high fever, throat, sore and inflamed, and vomiting, and it is discovered that page 286 occurs under each. Looking on page 286, these symptoms are all discovered there, and in addition other symptoms. Among the distinctive symptoms there given is a rash or eruption upon which, when the finger nail is drawn across it, a white line or mark is left. If this rash appears on the patient and most of the other symptoms agree, then it may safely be assumed that the patient has scarlet fever, but if the symptoms do not agree, and the rash is not present, then other diseases must be looked for in which the symptoms do agree.

Abscess, see Boils.

Abdomen, see Stomach.

Distended, 173.

Distended and tender when pressed upon, 339.

Feeling of weight and soreness in abdomen on right side above hip bone, 180.

Hard and tense, 176.

Hard and somewhat distended, 251.

Pain in abdomen, 183, 341, 342; burning and tearing, 177; severe cutting and boring, and abdomen is tense, hard and bloated, 181.

Puffed out or drawn in, 174.

Sunken, 248.

Swells considerably, 182.

Swells and sounds hollow when thumped upon, 257.

Tender, 301.

Ache, see Pain.

Appetite, capricious, 175, 202.

Loss of, 154, 158, 159, 164, 171, 173,
176, 181, 182, 184, 200, 201, 246,
255, 266, 287, 304.

Belching, 175.

Bladder, see Kidneys.

Bleeding, see Hemorrhage.

Blood vessels, hard, tortuous and some-
times bony, 170.

Stand out on face and forehead while
coughing, 295.

Boils and Abscesses, 152, 284.

Bowels, see Constipation and Diarrhea.

Desire to evacuate almost constant,
154.

Desire to move but usually consti-
pated, 176.

Irregularity in movements from, 154.

Gas in, 251.

Brain, rupture of vessels in, 171.

Breath, bad, 159, 171, 202, 243,
251, 378.

Breathing, difficult, 161, 168, 182, 199,
339, 340.

Difficult and wheezing, 160.

Difficult and noisy, 259, 297.

Difficult while coughing, 295.

Irregular and rapid, 193, 232, 248,
344.

Irregular and slow, 189, 280.

Mouth breathing, 241, 242, 243.

Rapid, 162, 169, 191, 263, 266.

Rapid and shallow, 164, 167, 257.

Slow and shallow, 172, 276.

Chest, see Lungs.

Distress in, 161.

Fixed and immovable, 169.

Fluid between lungs and chest walls,
167.

Irritation in, 160.

Lower part sunken in, 164.

Movements decreased over affected
parts, 167.

Pain in, 264, 265; sharp in one par-
ticular spot, 270.

Sounds in, crackling or squeaking,
167; crackling which cough does
not change, 270; dull, which
changes when position changes,
271; moist and bubbling, 158;
slight rattling or crackling, 162;
small and large bubbling sounds,
164; rattling, 263, 266; rough,
rasping, 261.

Soreness in, 159.

Tenderness to pressure, 167.

Chill, 153, 155, 166, 167, 175, 177, 180,
242, 285, 288, 297, 304.

Followed by fever, 181, 200, 301.

Slight, 175, 177.

Violent, 151, 162.

Circulation, of the blood, poor, 232,
233, 250.

Cold, bad, 290; moderately severe, 294.

In nose and head, 263.

In nose and throat, 158.

Colic, 30, 177, 183, 229, 251, 252, 255,
340, 341, 344.

During digestion of a meal, 181.

Gallstone colic, 183.

Cough, see Expectoration, 161, 240, 241,
266, 301, 339, 377, 380.

Dry and hard, 158, 159.

Explosive, 295.

Hacking, 161, 166, 167, 270.

Hoarse and croupy, 161, 259, 260.

Paroxysmal, 294, 295.

Short, 168.

Tight, 264, 265.

With rust colored expectoration, 162.

Constipation, 154, 158, 173, 175, 176,
179, 182, 184, 201, 202, 203, 235,
251, 252, 253, 280.

Convulsions, 190, 277, 280, 294, 339.

Slight twitching or sudden convul-
sion, 276.

Violent, 343.

Cramps, in muscles and especially in
calves, thighs, fingers and toes,
177; in muscles, 201.

Cry, low distressed moan, 280.

Sharp and piercing, 251.

Single peculiar, 277.

Deafness, 189, 301.

Defect in hearing, 190.

Delirium, 151, 152, 267, 298, 341, 345.

With snakes, horrors, etc., 153, 190.

With throwing hands and arms about head, 280, 301, 304.

Depression, 169, 172, 173, 200, 202, 301.

Easily depressed, emotional and whimsical, 194.

Diarrhea, 153, 176, 242, 247, 248, 286, 301, 341, 344, 345.

Bowels move so freely as to produce purging, 172, 177.

Moderate, 154, 164, 182, 198, 232, 238.

Severe, 154.

Digestion, disturbed, 153, 160, 162, 166, 173, 187, 233.

Indigestion, 174, 175, 195, 301.

Dizziness, see Faintness.

Dropsy, 182, 198, 199.

Drowsiness, 175, 291, 304, 343.

Dyspepsia, see Digestion.

Ears, ache, 284.

Inflammation in, 287.

Noises in, 189, 191, 342.

Running from, 291.

Eruption, blisters form on pimples and pus in blisters about the eighth day, 152.

Bright scarlet, tiny points; passing finger nail over rash leaves white line, 286.

Coarse red spots appearing on third day, first upon forehead and lips, 151.

Dark red spots first appearing behind ears and gradually spreading over body, 291.

Eczema, 283.

Large irregular patches on face, and of size of pinhead to that of a pea on body, giving skin shotty feeling, 292.

Pimples upon face or scalp which slowly spread and increase in size and which have little blisters on them; the blisters dry and form pits, 293.

Pus forms in pimples and fever rises, 152.

Red spots which run together and spread, appear after chill, 153.

Red spots along spine, 280.

Resembling flea bites upon back, chest and abdomen, 301.

Rose colored eruption on skin, 340.

Sweat rash, 282; prickly heat, 282.

Tiny eruption with much itching, 345.

Expectoration, bloody, 378.

Brownish red and yellow, 266.

Consistence of cheese, 243.

Of glairy mucus, 166.

Rust colored, 162.

Scanty blood streaked, 161,

Thick stringy and yellowish, 159.

Eyes, see Sight.

Bloodshot, 151, 161, 189, 191, 226, 258, 290, 340, 351, 352.

Fixed stare for a moment, 276, 277.

Lids swell, 352.

Light is painful, 290, 304.

Pain in and about, 330, 351, 352.

Pupils small, 189, 338, 344.

Pupils large, 280, 343.

Sunken, 202, 248.

Thick creamy discharge and lids swell, 226.

Watery eyes, 160, 161, 252.

Whites of eyes yellow, 182, 184, 342.

Face, anxious look, 167.

Breaking out or rash on, 283, 291.

Dark circles under eyes, 202, 251.

Dull and stupid expression, 241.

Flushed and bathed in perspiration, 160.

Light yellow color, 226.

Pale, 191, 199, 202, 261, 276, 277.

Pinched features and sunken eyes, 181; and shows pain, 183.

- Pinched look, 154, 172, 174, 176, 203, 248, 251, 257.
 Puffiness under eyes, 198.
 Puffy and swollen, 198, 202.
 Red and purple while coughing, 295.
 Red, 151, 162, 189, 267.
- Faintness, feeling of, 174, 189, 190, 194, 197, 199, 301, 338, 341, 342.
- Feet and Legs, ankles swollen, 174, 234.
 Cold, 174, 197, 232, 233, 248, 249, 251, 257, 289.
 Gangrene of, 171.
 Legs and arms deformed, 235.
 Limbs jerk, 189.
 Numbness in feet, 187, 189.
 Pain and soreness in, 184, 187, 203.
- Fever, slight, 154, 155, 158, 164, 166, 167, 171, 175, 180, 181, 182, 184, 188, 198, 200, 270, 290, 293, 296, 297, 298, 301.
 High, 151, 153, 156, 162, 240, 242, 248, 256, 266, 280, 286, 290, 301, 304.
 Secondary fever, 152.
- Fretful, see Restlessness.
- Gas in intestines and bowels, 251, 255, 301.
- Gums, swollen and bleed easily, 202, 234, 239.
- Hands, cold, 174, 197, 232, 233, 248, 249, 251, 257, 298.
 Hands and arms deformed, 235.
 Hands difficult to use, 278.
 Hands and arms thrown about head, 280.
- Hard palate, covered with red spots, 286, 291.
- Head, rush of blood to, 189.
- Headache, 151, 155, 156, 162, 171, 175, 184, 185, 189, 197, 199, 203, 266, 270, 279, 280, 291, 296, 297, 300, 304, 338, 340, 341, 342, 343, 344, 350.
 Constant and gradually growing worse, 190.
- Heart, action interfered with, 166, 167, 182, 343.
- Distress about, 168.
 Palpitates, 161, 175, 194, 197, 199, 202.
 Severe, sickening pain in, 169.
 Weak, 342.
- Heartburn, 171, 175.
- Heat flashes, 171, 179.
- Hemorrhage, from bowels, 178, 202, 234, 252.
 From lungs, 166, 315.
 From nose, 258, 295, 298, 301, 316, 374.
 From mouth, 202, 234.
 From stomach, 202, 234, 315.
 From uterus, 316; during labor, 335.
 In general, 313.
- Hiccough, 181, 194.
- Hoarseness. See Voice.
- Inflammation, about anus, 178.
 Of bowels, 256.
 Of covering of lungs, 270.
 Of ears, 287.
 Of mouth and throat, 304, 339.
 Of tonsils, 242.
 In general, 206.
- Joints, pain and stiffness in, 200.
 Swelling about, 234, 281.
- Kidneys and bladder, pain about, 187, 198, 202, 275, 288.
- Lassitude, 30, 155, 158, 175, 184, 197, 202, 291.
- Lips, blue, 155, 259, 276.
 Pale, 202, 255.
 Dry, 237, 267, 304.
 Sore and cracked, 267, 298.
- Liver, pain about, 183, 184, 342.
- Lungs, see Chest.
 Bleeding from, 315.
 Congested, 168.
- Memory, confused, 277.
 Poor, 175, 189, 197, 203.
- Mind, confused somewhat, 277.
 Disturbed by peculiar fancies, 343.
 Irritable and weak, 197.

Mouth, bad taste in, 171.

Breathing through, 242, 243.

Pry, 296, 344.

Free discharge from, 298.

Inflamed, 238, 239, 339, 341.

Taste of copper or metal in, 341.

White and looks burned, 338.

Muscles, shrink, 186.

Flabby, 234, 240.

Pain in, 201.

Twitching of, 276, 278.

Weak, 298, 301.

Nails, blue, 155.Nausea, slight, 154, 155, 156, 176, 181,
182, 184, 190, 198, 301, 344.

Very severe, 172, 173.

**Nervousness, 194, 197, 203, 237, 251,
302.****Night sweats, 166, 302.**Nose, discharge from, 160, 161, 241,
258, 259, 290, 297, 298, 304, 372,
376.Bleeds, 153, 162, 295, 298, 301, 316,
374.

Nasal voice, 241.

Plugged, 258.

Numbness, 193, 341.

Feet numb, 187.

Finger tips numb, 339.

Odor to breath, 171, 174, 202, 251.

To stools disagreeable, 248, 251, 302.

To urine, sweetish, 202.

Peculiar about sick person, 152.

Pain, about bladder, 200.

About joints, 200, 201.

About nerves, 185.

Burning in rectum, 154, 178.

Constant in pit of stomach, 173.

Cutting, tearing, pinching, and
twisting over abdomen, 176.

Colicky, 154, 174, 176.

Dull in back and over kidneys, 198.

In abdomen, 182, 183, 257, 341, 342,
344.In back, 151, 173, 202, 242, 264, 265,
280, 291, 296.**In bowels, 154.**

In entire body, 158, 266, 304.

In chest, 158.

In ears, 284.

In and about the eyes, 350.

In limbs, 187, 203, 296.

In heart, intense sickening, 169.

In lungs, 162, 253, 264, 265, 270.

In muscles, 201, 242.

In side, 164, 167, 180.

Neuralgic, 199.

Sudden piercing in region of liver,
183, 184.

Upon swallowing, 240.

Paralysis, 186, 188, 189, 341.

Of vocal cords, 190.

Sudden of any part of the body, 193.

Sensations blunted, 188.

Perspiration, clammy, 172, 177, 232.

Gentle soft, 174.

On head, 156, 169, 235.

Profuse at night, 302.

Pits, 152, 294.**Potbelly, 236.****Prostration, marked, 162, 166, 191.**Pulse, strong and rapid, 151, 156, 158,
161, 162, 198, 201, 260, 266, 301.Weak and rapid, 153, 154, 164, 167,
172, 177, 183, 191, 232, 248, 257,
259, 287, 298, 301, 304, 338, 339,
340, 342, 343.

Slow, 189, 280, 338, 343, 344.

Hard and tense, 170, 176, 181.

Irregular, 170, 174, 338.

Purging, 177.**Rash, see Eruption.**Restlessness, 153, 174, 237, 255, 279,
280.

At night, 235, 279.

Fretfulness, 248, 250, 257.

Scabs and crusts, 151, 283, 294.Sight, interfered with, 188, 189, 190,
191, 199, 301, 304, 343.

Flashes of light, 189.

Floating spots before eyes, 342.

- Skin**, blue, 188, 340, 342.
 Cold and clammy, 172, 176, 177, 191, 232, 248, 261.
 Cold, 176, 181, 183, 191, 340.
 Cool and rough, 154.
 Covered with rash, 287, 291, 293, 343, 345.
 Dry, harsh and itchy, 183, 291.
 Goose-flesh appearance, 155.
 Hot and dry, 156, 158, 191, 198, 203, 267.
 Irregular about blood vessels, 170.
 Muddy color, 184, 202, 251.
 Pale, 155, 166, 174, 231, 233, 234, 242, 243, 248, 250, 302.
 Red, irritated and swollen, 345.
 Scales off, 153, 291.
 Sensitive, 185.
 Yellow color, 226, 342.
- Sleeplessness**, 151, 153, 162, 173, 175, 189, 190, 197, 200, 201, 233, 237, 248, 250, 251, 252, 301, 343.
- Smell**, see **Odor**.
- Sneezing**, 160, 161, 258, 290.
- Snoring**, 243.
- Spasm**, see **Convulsions**.
- Stomach**, see **Abdomen**.
 Bleeding from, 315.
 Bloated, 174, 246.
 Burning feeling in, 172, 173.
 Distress in and about, 153, 171, 173, 174, 175, 177, 182, 245, 246, 342, 344.
 Gas in, 171, 175.
 Heaviness, 171, 173, 174, 175, 245.
 Sour, 174.
- Stools**, bloody, 154, 178, 252, 341.
 Dry, 202.
 Disagreeable odor, 248, 251, 302.
 Frequent, 248, 302.
 Pale, 202, 251, 302.
 Undigested food in stools, 232, 246.
 Watery, 176, 177, 248, 342.
- Swallowing**, difficulty in, 239, 240, 242, 291.
- Swelling**, of ankles, legs or abdomen, 166, 174, 182, 198.
 Of eyelids, 352.
 Of face, 152, 198, 296, 352.
 Of jaw, 296.
 Of joints, 180, 201, 234, 281.
 Of skin, 153, 345.
- Sweating**, see **Perspiring**.
- Temperature**, see **Fever**.
- Teeth**, become loose, 202.
 Chatter, 155.
 Grind, 251, 255.
- Thirst**, intense, 153, 173, 177, 201, 202, 248, 343.
 Moderate, 155, 158, 171, 172.
- Throat**, dryness of, 172, 240, 343, 374.
 Deposit in, 297, 378.
 Foreign bodies in, 382.
 Feeling, as of ball in, 194.
 Hoarseness, 380, 381.
 Inflamed, 286, 297, 304, 339, 341, 377, 378.
 Raw, 378, 380, 381.
 Rattling in, 276.
 Spasms, in 261.
 Sore, 286, 290, 297, 340, 377.
 Tonsils swollen, 240, 243.
 White and looks burned, 338.
- Tired feeling**, see **Lassitude**.
- Tonsils**, see **Throat**.
- Tongue**, coated, 153, 154, 171, 182, 184, 238, 239, 246, 248, 250, 251, 281, 301, 304.
 Covered with small white spots, 239.
 Dry, 297.
 Edges red, 238.
 Swollen, 239.
- Tumors**, of brain, 190.
 In abdomen on right side over hip, 180.
 Protruding from anus, 178.
- Veins**, stand out clearly, 168.
- Voice**, affected, 191, 243, 381.
 Hoarse, 154, 260, 380, 381.
 Loss of, 298, 380.
 Nasal, 241, 258.

- | | |
|---|---|
| <p>Vomiting, 151, 159, 162, 167, 173, 174,
 176, 177, 181, 182, 183, 189, 190,
 198, 199, 240, 244, 245, 250, 253,
 257, 280, 286, 296, 297, 304, 338,
 340, 341, 344, 345.
 Acid and bitter, 171.
 After coughing, 295.
 Black lumps in vomit, 339.
 "Coffee ground" vomit, 174.
 Greenish matter, 248, 341.
 Of blood, 172, 174, 246.
 Of curds, 230.
 Vomiting caused by any sort of
 liquid, 177.
 Vomit smells of phosphorus, 342.</p> | <p>Ulcers, 237, 239.
 In stomach, 246.
 Unconsciousness, 191, 276, 342.
 Urine, blood in, 316, 344.
 Frequent desire, 198, 200, 202, 203.
 Heavy and dark color, 183, 198, 200,
 338.
 Large amount of, 202, 203.
 Lack of control, 274.
 Pale and watery, 175, 202, 203.
 Scanty, 156, 171, 182.
 Scanty and highly colored, 154, 162,
 164, 173, 175, 184, 199, 201, 202,
 267.</p> |
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GLOSSARY.

- Abortion*—Premature expulsion of the foetus.
- Abscess*—A limited cavity containing pus.
- Absorption*—The taking up of fluids.
- Acute*—In medicine the term is applied to diseases attended with danger and which terminate in a few days.
- Anemia*—Deficiency in quantity and quality of blood.
- Anæsthesia*—Lack of sense of feeling.
- Aneurism*—A dilation of a blood vessel.
- Anus*—The lower extremity of the bowel.
- Antidote*—A remedy against poison.
- Antiseptics*—Drugs which counteract putrefaction.
- Asphyxia*—Apparent death or suspended life, particularly from suffocation.
- Atrophy*—Wasting or emaciation without fever.
- Bacteria*—Microscopic organisms found in decomposing matter, and believed to be the cause of many diseases.
- Bile*—The secretion of the liver.
- Bronchial Tubes*—The air tubes of the lungs.
- Carbon Dioxide Gas*—The gas thrown off by the lungs and also produced by the burning of wood and coal.
- Capillary*—Blood vessels, hairlike in size.
- Casein*—The curd of milk separated by acids or rennet.
- Catarrh*—Increased secretion from, and inflammation of, a mucous membrane.
- Cathartic*—A remedy which produces a free movement from the bowels.
- Cellulose*—The substance of which the cell walls of vegetable tissue are made.
- Cerebellum*—The little brain.
- Cerebrum*—The large brain.
- Chronic*—Of long duration.
- Clinical*—Pertaining to the sick bed.
- Coagulation*—Curdling of a fluid.
- Congestion*—Overfilling or overfilled.
- Contagious*—A disease which may be contracted from a person who is suffering from the disease.
- Coma*—Complete insensibility produced by disease.
- Convalescence*—The period of recovery from disease.
- Convulsions*—Involuntary contractions of the muscles.
- Counter-irritation*—Irritation produced in one part of the body to relieve another part.
- Delirium*—Wandering of the mind.
- Derma*—The skin.
- Desquamation*—Scaling off of the skin.
- Diagnosis*—Distinguishing one disease from another.
- Dietetic*—Belonging to the taking of proper food.
- Digestion*—The change which fluid undergoes in the alimentary canal.
- Douche*—A column or shower of fluid.
- Duct*—Any tube or canal.
- Effusion*—The act of pouring out.
- Elimination*—To expel, to put out, to throw off.
- Emanation*—That which issues from the body.
- Emesis*—The act of vomiting.
- Emulsion*—A mixture of oil and water.

Engorgement—Overfullness.

Enuresis—Inability to hold the urine.

Epistaxis—Nose bleed.

Excreta—Waste material from the body.

Expectorant—A remedy which aids in expelling sputa.

Exudation—To pass outward, as through the pores.

Farinaceous—Belonging to grain.

Fauces—The throat.

Febrile—Pertaining to or indicating fever.

Feces—Evacuations from the bowel.

Flatulence—Gas in the stomach or the intestines.

Foetus—The young of any animal before birth.

Fomentation—The application of hot cloths.

Gastric—Pertaining to the stomach.

*Germ*s—Independent living organisms.

Gestation—Pregnancy.

Gland—An organ having the function of secretion.

Granulations—Small red bunches forming on the surface of wounds.

Hematemesis—Vomiting of blood.

Hematuria—Blood in the urine.

Hemoptysis—Spitting of blood.

Hemorrhage—The escape of blood from the vessels.

Hemostatic—Anything which will stop bleeding.

Hernia—Rupture.

Hygiene—Health rules.

Incontinence—Inability to restrain.

Infectious—A disease which results from the same cause but not from contact with a person who is suffering from the disease.

Innocuous—Harmless; safe.

Inorganic—Substances which do not belong to the animal or vegetable kingdoms.

Intermittent—Ceasing at intervals.

Irrigation—Regular and continuous washing of a part.

Jaundice—Yellowness resulting from some obstruction to the flow of bile.

Larynx—The windpipe.

Legumin—Vegetable proteid.

Litmus—A blue vegetable pigment which turns red when acid is applied to it.

Local—Limited to one place.

Lock Jaw—A spasm with rigidity.

Malignant—Very serious in character.

Mammary—Relating to the breasts.

Manipulation—Handling.

Massage—Rubbing and handling the muscles.

Mastication—Chewing.

Miscarriage—Premature expulsion of a foetus.

Nares—The wings of the nose.

Nausea—Squeamishness and sickness at the stomach.

Nitrogen—The principal constituent of air but not life supporting.

Nutrition—The process by which food is digested, assimilated and made nourishing.

Oesophagus—The gullet.

Organic—Any animal or vegetable substance.

Oxygen—One of the principal constituents of air.

Palate—The roof of the mouth.

Panacea—A universal remedy.

Paroxysm—Any sudden or violent action.

Paresis—Paralysis.

Paralysis—Loss of voluntary motion.

Periosteum—The membrane covering the bones.

Plethora—An excess of blood.

Pleura—The membrane which covers the lungs.

Polypus—A kind of tumor which occurs in mucous membranes.

- Post Mortem*—After death.
- Prognosis*—A prediction of the course of a disease.
- Propagation*—The producing of young.
- Prophylaxis*—Prevention.
- Plomaine*—Poison produced by putrefaction.
- Purgative*—To produce movement from the bowel.
- Putrefy*—To rot.
- Puerperal*—Relating to childbirth.
- Pulmonary*—Relating to the lungs.
- Purulent*—Having the character of pus.
- Quickening*—The first movement of the foetus felt in the uterus.
- Rales*—Sounds in the air passages produced by air passing through fluid.
- Recurrent*—Tending to return.
- Regurgitation*—The flowing backward of the contents of an organ.
- Resolution*—Separating into parts.
- Relapse*—A return of disease.
- Rigor*—A chill.
- Rigor Mortis*—A stiffening of the muscles occurring after death.
- Salivation*—Excessive secretion of saliva.
- Septic*—Poisonous.
- Serum*—The watery portion of the blood.
- Sedative*—A remedy which relieves irritation and pain.
- Show*—A discharge which occurs just before labor.
- Slough*—To come away, as the dead matter from a sore.
- Sordes*—A gathering of the secretion of the mouth upon the teeth.
- Spasm*—An involuntary muscular contraction.
- Sprain*—A violent stretching of the parts about a joint.
- Sputum*—Matter spit out.
- Suppurative*—The formation of matter or pus.
- Sutures*—Stitches for holding the edges of a wound together.
- Tampon*—A plug.
- Tetanus*—Lockjaw.
- Thoracic*—Relating to the chest.
- Thrombosis*—The obstruction of a blood vessel by a clot.
- Traumatic*—Resulting from a wound.
- Trituration*—Thorough mixing.
- Tuberculosis*—Consumption.
- Tumefaction*—Swelling.
- Tumor*—A diseased growth.
- Ulcer*—A running sore.
- Umbilicus*—The navel.
- Ureters*—Tubes connecting the kidneys with the bladder.
- Urethra*—The tube through which the bladder is emptied.
- Uterine*—Relating to the womb.
- Uterus*—The womb.
- Varicose*—Enlarged or twisted condition of a vein.
- Vascular*—Full of blood vessels.
- Vertigo*—Dizziness.
- Vesicle*—A very small blister.
- Virulent*—Very active in doing injury.
- Vitiate*—To make imperfect; to impair; to spoil.

GENERAL INDEX.

- Abscess, 241.
Absorption, of products of digestion, 38.
Adam's apple, 379.
Adenoids, 241.
Administration of remedies, 219.
Ague, 155.
Air, 27; for children, 213; impurities in, 27; nature of impurities, 103; ground air, 20; effect of ground air on health, 19; methods of securing inflow of pure air, 104; methods of securing outflow of foul air, 105.
Air cells, 102.
Air passages, foreign bodies in, 261, 382.
Albumen, test for in urine, 140, 288.
Alcohol, 56; conclusions on use of, 60; effect of use on human system, 58.
Alcoholic beverages, list of, 60; use, 62.
Alcoholism, 190.
Ammonia, poisoning, 339.
Anatomy, of ear, 361; of eye, 348; of respiratory organs, 101.
Angina pectoris, 169.
Anthrax, 157.
Antipyretics, 220.
Antiseptics, 311.
Antitoxine, 300.
Apnea, 103.
Apoplexy, 189.
Appendicitis, 180, 253.
Appendix, vermiform, 180.
Appetite, observation of, 146.
Arsenic, poisoning, 342.
Arterio sclerosis, 170.
Artificial feeding, 228.
Assimilation of food, 44.
Asthma, 160.
Astigmatism, 350.
Ataxia, locomotor, 187.
Atropine, poisoning, 343.
Backbone, injuries to, 187.
Bacteria, agents for destruction, 74.
Barley, as food, 52.
Barley water, 111.
Baths, 128; acid, 134; alkaline, 134; bran, 134; cold, 131; foot, 133; hot, 132; hot air and vapor, 133; medicated, 134; remedial, 130; salt, 134; sitz or hip, 133; sponge, 132; starch, 134; sulphur, 134; Turkish, 78.
Bathing of sick, 129; of child, 210.
Beans, 53; cooking, 54.
Bed, air, 89; water, 89; sick, 84; to make, 86; position, 87; moving patient from one bed to another, 88; to prop patient up in, 89.
Bedwetting, 274.
Bedstead, 85.
Bed covers, 86.
Bed sores, 90, 91; means of preventing, 90; treatment, 91.
Bee stings, 323.
Beef, juice, 114; beef tea, 114; beef tea with acid, 114.
Beer, physiological action, 61; dietetic use, 62.
Belladonna, poisoning, 343.
Beverages, alcoholic, discussion, 57; list, 60; dietetic use, 62.
Beverages, non-alcoholic, 63.
Bile, 36.
Biliary calculi, 183.
Biliousness, 184.
Biscuit, 52.
Bite of snake, 321.
Black vomit, 147.

- Bladder, training to proper use, 212; catarrh, 200; spasm, 275; stone in, 275.
- Bleeding, see Hemorrhage.
- Bleeding, methods of stopping, 313; from lungs, 315; from nose, 258, 316.
- Bleeding piles, 178.
- Blisters, 123.
- Blood, 92; how purified, 102; circulation, 92, 94; functions, 93; effect of alcohol, 58; in the urine, 316.
- Blood letting, 161; in pleurisy, 168.
- Blood vessels, in infancy, 272; effect of alcohol, 58; of exercise, 68.
- Bloody flux, 154.
- Blue babies, 93.
- Blue vitriol, poisoning, 341.
- Body, temperature, 97; effect of exercise, 70.
- Boils, 284; in ear, 361.
- Bone, diseases, 282.
- Bowels, see Intestines.
- Bowels, inflammation, 157, 256; injections into, 118; materials for injection, 119; method of giving injections, 118; training to proper use, 212.
- Brain, congestion, 189; hemorrhage, 189; tumors, 190.
- Brandy, 61.
- Bread, 50.
- Breathing, see Respiration.
- Breathing, 28, 101; rate, 262.
- Bright's disease, acute, 198; chronic, 199.
- Bronchitis, acute, 158, 263; chronic, 159, 265.
- Bronchial pneumonia, 164.
- Broth, chicken, 114; clam, 114; mutton, 114; oyster, 115.
- Buckwheat, 53.
- Burns, 325.
- Butter, 56; adulterations, 56.
- Butterine, 56.
- Caffein, 63.
- Cakes, 50.
- Calculi, biliary, 183.
- Camphorated oil, 222.
- Cancer of the stomach, 174.
- Carbohydrates, 35.
- Carbolic acid, poisoning, 338.
- Carbuncle, 328.
- Care, general of infants and young children, 210; of eyes and mouth in children, 211; of nervous system of children, 212; of skin of children, 211; of bowels and bladder, 212.
- Cataract, 358.
- Catarrh, effect of ground water, 21, 24; of bladder, 200; acute of throat, 377; chronic of nose, 372; chronic of throat, 378; dry, 374; prescription for, dry, 375; moist, 372; nasal, 257, 367; purulent, 374; acute of stomach, 171; chronic of stomach, 172.
- Catheter, use of, 141.
- Caustic soda, poisoning, 340.
- Caustic potash, poisoning, 340.
- Cerebro-spinal meningitis, 280.
- Cess pools, 26.
- Champagne, dietetic use of, 62; whey, 113.
- Cheese, 56; poisoning, 345.
- Chest, inflammation, 32.
- Chickenpox, 293.
- Chills, observation of, 144.
- Childbirth, 330.
- Child-bed fever, 336.
- Children, bathing, 210; care of eyes and mouth, 211; general care, 210; care of nervous system, 212; care of skin, 211; diseases, 210, 215; diseases of new-born child, 225; dosage of medicine for, 224; food and feeding, 215; peculiarities of diseases, 215; physical examination, 215; pulse rate, 272; scurvy, 234; sore eyes, 226; starvation, 231; observation of symptoms, 216.
- Chocolate, 65, 117.
- Cholera, Asiatic, 205; simple, 20, 205; infantum, 247.
- Cholera morbus, 177.
- Circulation, of blood, 92, 94.

- Cistern, away from vaults, 26.
 Clothing, 70; changing that of patients, 129; for children, 211.
 Clinical thermometer, use, 98.
 Coca, 65.
 Cocoa, 64; adulterations, 64.
 Coffee, 63, 117; adulterations, 64; as an article of diet, 63; nutritious, 113.
 Colic, 176.
 Cold applications, 127; in the chest, 158, 263; sores, 273.
 Composition of remedies, 384.
 Condiments, 65.
 Congestion, of brain, 189; of liver, 184; of lungs, 32, 161.
 Conjunctiva, diseases, 351.
 Contagia, 72; material in which contagia are spread, 73.
 Constipation, chronic, 178, 252.
 Consumption, 21, 24, 165; of spinal cord, 187.
 Convulsions, 275.
 Copper, poisoning, 341.
 Corea, 278.
 Corn, 52.
 Corrosive sublimate, poisoning, 341.
 Cough, observation of, 144; whooping, 294.
 Counter-irritants, 122, 222.
 Crackers, 50.
 Croup, 206; membranous, 260; spasmodic, 259.
 Crusts on scalps, 283.
 Cushions, rubber, 89.
 Cystitis, 200.
 Deafness, 281; progressive, 365.
 Death, signs of, 347.
 Deformities of nasal septum 375.
 Deglutition, 37.
 Delirium tremens, 190.
 Dentition, 214.
 Deodorization, 72.
 Deodorants, 77.
 Diabetes insipidus, 203; mellitus, 202.
 Diarrhea, 247; epidemic, 20, 21, 24; summer, 247.
 Diet in disease, 106.
 Dietary, sick room, 111.
 Dietetic use of alcoholic beverages, 62.
 Differences noted in diseases, 205.
 Difficult teething, 237.
 Digestion, mechanism, 37; physiology, 33; conditions, 44; effects of exercise, 69.
 Diphtheria, 206, 296; disinfection, 76; carried by milk, 56.
 Disease, 150; general, 150; differences noted, 205; diet in, 106; of new-born child, 225; of children, 210; peculiarities in children, 215; causes in adults, 150; in children, 215.
 Diseases, specific infectious, 285; disinfection, 75; connected with food and feeding, 42, 231; history, 150; prevention, 219; prognosis, 219; symptoms in children, 216; in adults, 150.
 Disease, bone, joint and skin, 282; conjunctiva, 351; digestive system, 236; ear, 361; eye, 348; genital organs, 273; heart, 168, 169; intestines, 247; liver, 256; rectum, 255; respiratory system, 257; stomach, 244; tear ducts, 359; upper throat, 240.
 Disinfection, 72, 75.
 Disinfecting solution for diphtheria, 76.
 Dosage for children, 224.
 Douche, vaginal, 121.
 Dressings, antiseptic and surgical, 311, 312.
 Dropsy, 182.
 Drowning, treatment, 346; signs of death, 347.
 Drugs, effect on urine, 138.
 Drunkard's dyspepsia, 172.
 Dry fomentations, 126.
 Dysentery, 20, 21, 154.
 Dyspepsia, 35, 36, 37, 44, 45, 175; chronic, 172; drunkard's, 172.
 Dyspnea, 103.
 Ear, 362; boils, 361; discharge, 364; diseases, 361; observation, 145; wax, 362.

- Earache, 284, 365.
 Eczema, 283; of lips, 237; prescription for, 284.
 Eggs, 57.
 Egg lemonade, 113; eggnog, 113; egg water, 111.
 Eliminating organs, effects of alcohol, 58.
 Embolus, 93.
 Endocarditis, acute, 168.
 Enemata, 118; material for, 119.
 Enlargement, chronic, of tonsils, 243.
 Enuresis, 274.
 Epilepsy, 206, 276.
 Epistaxis, 258, 316.
 Erysipelas, 153.
 Examination, physical, of children, 215.
 Excreta, removal, 25.
 Exercise, 213; effects, 66, 68, 69, 70.
 Eye, anatomy and physiology, 348; cataract, 358; pterygium, 359; iritis, 356; observation of, 145; purulent inflammation, 353; purulent of infants, 226; granulated lids, 352.
 Eyeball, 348.
 Far sight, 349.
 Feeding, diseases dependent upon, 231; artificial, 228; children, 215; helpless patients, 108; infant, 227.
 Fever, see Temperature.
 Fever, temperature, 99; how reduced, 220; antipyretics, 220; sponge bath, 132; wet pack, 132.
 Fever, childbed, 336; fever and ague, 155; hay, 161; intermittent, 155; lung, 161, 265; malarial, 155; scarlet, 285, and temperature of room, 32; sores, 237; spotted, 280; swamp, 155; typhoid, 300.
 Fibrinous inflammations, 308.
 Fish, as food, 47; poisoning, 345.
 Flour, 49; adulterations, 50; cooking, 50.
 Follicular pharyngitis, 378.
 Fomentations, dry, 126; hot, 126, 224.
 Food, 40; composition, 106; deficiency, 43; digestibility, 40; merits of different articles, 45; diseases connected with, 42, 231; excess, 42; for infants, 210; preparation, 109; quality, 45, 108.
 Foramen ovale, 272.
 Foreign bodies in air passages, 261, 382; in nose, 376.
 Fracture board, 86.
 Friction in massage, 136.
 Frost bite, 325, 327.
 Gallstones 183.
 Gangrene, 171.
 Gargles, 128.
 Gas, poisoning, 342; sewer gas, 30.
 Gastralgia, 245, 174.
 Gastric juice, 35.
 Gastritis, acute, 172.
 General diseases, 150.
 Genital organs, diseases, 273.
 Gin, 61; dietetic value, 62.
 Gin drinker's liver, 184.
 Glands, 157.
 Glands, sweat and sebaceous, 128.
 Glossary, 396.
 Granulated lids, 352.
 Grip, 304.
 Gripes, 176.
 Ground water and air, effect on health, 20, 21, 24.
 Gruel, cracker, 116; flour, 116; Indian meal, 116; oatmeal, 116.
 Gum Arabic water, 111.
 Hair, combing, 130.
 Hay fever, 161.
 Headache, 279; habitual and chronic, 185; sick, 185.
 Heart, 93; in infancy, 272; effects of exercise, 68; disease, 32, 168, 169; neuralgia, 169; nervous palpitation, 170.
 Heartburn, 175.
 Heat, conduction and convection, 32; prickly, 282; stroke, 191.
 Heating, see Warming.

- Health rules, 17.
 Hematemesis, 315.
 Hematuria, 316.
 Hemorrhage, see Bleeding.
 Hemorrhage 313; as a symptom, 148;
 in brain, 189; in labor, 335; from
 uterus, 316; method of stopping, 313.
 Hemorrhoids, 177.
 Hemoptysis, 315.
 Hobnailed liver, 184.
 Hornet sting, 323.
 Hot fomentations, 126, 224.
 Hydrochloric acid, poisoning, 339.
 Hydrophobia, 157, 323.
 Hygiene, definition and opening chap-
 ter, 17; general remarks on individ-
 ual hygiene, 77.
 Hyperopia, 349.
 Hysteria, 192, 206.
 Impurities in air, 27.
 Incontinence of urine, 141.
 Index of symptoms, 389.
 Indigestion, 36, 37, 44, 45; acute, 171;
 in stomach, 245; in intestines, 250.
 Infants, food for, 210.
 Infantile paralysis, 188.
 Infectious diseases, 285; purification of
 rooms after, 75.
 Inflammation, 206; varieties, 308; ser-
 ous, 308; fibrinous, 308; productive,
 309; suppurative, 310.
 Inflammation, bowels, 175, 256; puru-
 lent of eye, 353; covering of lungs,
 167, 270; mouth, 238; hanging pal-
 ate, 241, 379; tonsils, 242; reduction,
 126, 127.
 Influenza, 304.
 Insomnia, massage as a cure, 135.
 Intermittent fever, 155.
 Intestines, diseases, 247; indigestion,
 250; movements, 38; obstructions,
 180.
 Injections, prescription for, 224; into
 bowel, 118; to produce purging, 119;
 method of giving, 118; administering
 nourishment by, 120.
 Iodine, poisoning, 240.
 Iritis, 356.
 Jaundice, 182, 256.
 Joint diseases, 282.
 Junket, 113.
 Kidney, 199.
 Kola, 65.
 Koumiss, 55, 112.
 Labor, 331; preparations for, 332; hem-
 orrhage, 335.
 La grippe, 304.
 Laryngitis, acute, 379; chronic, 381.
 Liniments, 128.
 Lips, eczema, 237.
 Liver, congestion, 184; diseases, 256;
 hobnailed and gin drinker's, 184;
 effect of alcohol, 58.
 Lead, poisoning, 240.
 Lockjaw, 324.
 Lotions, 127.
 Lungs, 262; congestion, 32, 161; effect
 of alcohol, 58; of exercise, 66; bleed-
 ing from, 315; inflammation of cover-
 ing, 167, 270; fever, 161, 265.
 Lymph vessels, 39.
 Macaroni, 50.
 Mad dog bite, 157.
 Malarial fever, 155; effect of ground air
 and water, 21, 24.
 Mastication, 37.
 Massage, friction, 136; as a cure for
 insomnia and neuralgia, 135; meth-
 ods of applying, 135; passive mo-
 tions, 130.
 Mattresses for patient, 85.
 Measles, 76, 207, 290; German, 292.
 Meat, 45; cooking, 47; raw meat diet,
 115; how to detect bad meat, 45;
 tainted meat poisoning, 345.
 Meat cure, 115.
 Medicine, doses for children, 224.
 Membranous croup, 260.
 Meningitis, cerebro-spinal, 280.
 Menstrual flow, benefitted by sitz bath,
 133.

- Milk, 55; changes in, 55; from diseased cows, 55; diseases carried by, 56.
- Milk, and albumen, 116; and egg, 112; hot milk and water, 112; peptonized, 112, 116; with toast, 112; punch, 117; sago, 116; sterilized, 112; poisoning, 345.
- Miscarriage, 331.
- Mixtures for spraying nose and throat, 382.
- Morphine, poisoning, 343.
- Mouth, care of, 130; inflammation, 238; observing symptoms in, 146.
- Mumps, 296.
- Muscles, effect of alcohol, 58; of exercise, 69.
- Mushrooms, poisoning, 344.
- Mussels, poisoning, 345.
- Mustard, 65.
- Mustard plasters, how made and uses, 122, 222.
- Myopia, 350.
- Nasal catarrh, 257.
- Nasal septum, deformities, 375.
- Near-sightedness, 350.
- Nervous system, general care of in children, 212; effects of alcohol upon, 58; effects of exercise, 69.
- Nervous prostration, 197.
- Neuralgia, 184; massage for cure, 135; of heart, 169.
- Nicotine, poisoning, 343.
- Nightshade, poisoning, 343.
- Nitric acid, poisoning, 339.
- Nose, 367; bleed, 258, 316; catarrh, 367; foreign bodies, 376; tumors, 376.
- Nourishment, given by injection, 120.
- Nursing, 81; rules, 228, 229.
- Nutrition, imperfect, 233.
- Oats, as food, 52.
- Obesity, 203.
- Observation of symptoms, 142, 144.
- Obstetrics, 330.
- Obstruction of the intestines, 180.
- Oil, camphorated, 222.
- Ointments, 128, 388.
- Oleomargarine, 56.
- Ophthalmia neonatorum, 226.
- Opium, poisoning, 343.
- Outhouses, 26.
- Oysters, peptonized, 113.
- Palate, inflammation, 241.
- Palpitation, nervous, of heart, 170.
- Pancreatic juice, 36.
- Paralysis, 186; infantile, 188.
- Pathology, 150.
- Patients, feeding helpless, 108; moving from one bed to another, 88; to prop up in bed, 89.
- Peas, 53; method of cooking, 54.
- Pepper, 65.
- Pepsin, 35.
- Peritonitis, 181, 256.
- Pharyngitis, acute, 377; chronic, 378; follicular, 378.
- Phimosis, 273.
- Physiology, of the eye, 348; of respiration, 101.
- Phosphorus, poisoning, 342.
- Piles, 177; bleeding, 178; prescription for, 178.
- Pink eye, 351.
- Pinworms, 255.
- Plaster, cayenne pepper, 123; mustard, 122, 222.
- Pleura, 101.
- Pleurisy, 167, 207; dry, 270; purulent, 271; watery, 270.
- Pneumococcus, 265.
- Pneumonia, 161, 207, 265; bronchial, 164; lobar, 162; temperature of sick room, 32.
- Poisoning, ammonia, 339; arsenic, 342; atropine, 343; belladonna, 343; blue vitriol, 341; carbolic acid, 338; caustic soda, 340; caustic potash, 340; cheese, 345; copper, 341; corrosive sublimate, 341; fish, 345; illuminating or coal stove gas, 342; hydrochloric acid, 339; iodine, 340; mercury, 341; milk, 345; morphine, 343; mushrooms, 344; mussels, 345; nico-

- tine, 343; nightshade, 343; nitric acid, 339; opium, 343; oxalic acid, 339; phosphorus, 342; poison ivy, 345; saltpeter, 340; strychnine, 343; sulphuric acid, 338; tainted meat, 345; tainted sausage, 344; tobacco, 343; verdigris, 341.
 Poisoning, treatment, 338.
 Porridge, baked flour, 112.
 Potatoes, 54; cooking, 54.
 Pot-belly, 236.
 Potus imperialis, 117.
 Poultrices, 124, 223; bread, 125; charcoal, 125; hop and bran, 125; linseed, 124; mustard, 126; slippery elm, 125; spice, 125; yeast, 125; how made and applied, 124, 223.
 Pregnancy, signs 330; duration, 330.
 Prickly heat 282
 Privy vaults, 26.
 Prognosis, 219.
 Prophylaxis, 219.
 Prevention of disease, 219.
 Prostration, nervous, 197.
 Proteids, 35.
 Pterygium, on eye, 359.
 Ptomaine, 46, 55.
 Ptyalin, 35.
 Pulse, 95; rate of in children, 272; taking, 96.
 Punch, milk, 117.
 Purification of sick room, 75.
 Quinsy, 242.
 Rash, sweat, 282.
 Rate of respirations, 102, 262.
 Rectum, diseases, 255.
 Remedies and their contents, 384; administration, 219.
 Respiration, see Breathing.
 Respiration, 28, 101; anatomy and physiology, 101; rate, 102; counting, 103; variations, 103; diseases of respiratory system, 257.
 Retention of urine, 140.
 Rheumatism, acute articular, 200; inflammatory, 200; muscular, 201; treatment of by sulphur baths, 134.
 Rhinitis, atrophic, 374; hypertrophic, 372.
 Rice, 53; cooking, 53; rice coffee, 117; rice water, 111.
 Rickets, 235.
 Roe, 18.
 Round worms, 255.
 Rubber cushions, 89.
 Rubefacients, 122.
 Rules for nursing, 228, 229; for serving meals, 107.
 Rum, 61, 113; dietetic use, 62.
 Rye, 52.
 St. Anthony's fire, 153.
 St. Vitus' dance, 278.
 Saliva, 34.
 Salt, 65.
 Saltpeter, poisoning, 340.
 Sausages, poisoning, 344.
 Scalds, 325.
 Scalp, crusts on, 283.
 Scarlet fever, 207, 285; carried by milk, 56; disinfection, 75; temperature of sickroom, 32.
 Scrofula, 204.
 Scurvy, 202; in children, 234.
 Sebaceous, glands, 128.
 Seborrhea, 283.
 Sewer gas, 30.
 Sheets, 86; method of changing, 87.
 Sickroom dietary, 111.
 Sickroom, location of, 81; furnishing, 83; noises in, 83; degree of warmth, 105.
 Sitz bath, 133.
 Skin, 128; care of in children, 211; diseases, 282; effects of exercise, 68; observation of changes in, 145.
 Sleep, 212; restless, 279.
 Smallpox, 151; disinfection, 75.
 Snake bites, 321.
 Spasm of bladder, 275.
 Spasmodic croup, 259.
 Spinal cord, injuries, 187.
 Spotted fever, 280.

- Spray mixtures, 382.
 Soil, air in, 19; consistence, 20; water in, 20.
 Sores, bed, 90; means of preventing, 90; symptoms, 91; treatment, 91.
 Sores, fever, 237; cold, 237.
 Soup, apple, 115; cream, 114; white celery, 115; rice, 115.
 Stammering, 279; stuttering, 279.
 Starches, 54.
 Starvation in children, 231.
 Stimulants, 221.
 Stings, bee, wasp, hornet, 323.
 Stitch in the side, 167, 270.
 Stomach, diseases, 244; cancer, 174; catarrh, 171, 172; acute indigestion, 245; ulcer, 173, 246; movements, 37; effect of alcohol, 58.
 Stomachache, 245.
 Stone in bladder, 275.
 Stools, condition of, as symptom, 147.
 Strawberry tongue, 146.
 Strychnine, poisoning, 343.
 Stupes, 126; turpentine, 222.
 Sugar, 54; test for sugar in urine, 140.
 Sulphur baths, 134.
 Sulphuric acid, poisoning, 338.
 Summer diarrhea, 247.
 Sunstroke, 191.
 Suppression of urine, 140.
 Surgery, 306.
 Surgical dressings, 311, 312.
 Swallowing, 37.
 Swamp fever, 155.
 Sweat glands, 128.
 Sweat rash, 282.
 Syllabub, 117.
 Symptoms, index, 389; of disease, 150, 216; observation of, 142, 144.
 Syphilis, 303.
 Tabes dorsalis, 187.
 Tainted meat, poisoning, 345.
 Tainted sausages, poisoning, 344.
 Tapeworms, 254.
 Taste, observation, 146.
 Tea, 64, 117; as an article of diet, 64; flaxseed, 111.
 Tear ducts, diseases, 359.
 Teething, 214; difficult, 237.
 Temperature, see Fever, Warmth.
 Temperature, of body, 97; for bath, 131, 132; in fever, 99; effects of alcohol, 58; of sickroom, 32; table, 97; places where taken, 98; time required to take, 99; varying by artificial means, 100.
 Test for albumen in urine, 140, 288.
 Tetanus, 324.
 Thein, 64.
 Theobromin, 64.
 Thermometer, clinical, uses, 98.
 Thirst, observation of, 147.
 Threadworms, 255.
 Throat, 367, 377; diseases of upper part, 240; acute catarrh, 377; chronic catarrh, 378; sore, prescriptions for, 381; observation of, 146.
 Thrombosis, 93.
 Thrush, 239.
 Toast water, 111.
 Tongue, observation of, 146; strawberry, 146.
 Tonics, 221.
 Tonsils, chronic enlargement, 242; inflammation, 243.
 Trachoma, 352.
 Treacle posset, 116.
 Treatment, varieties of, 151.
 Trichinae, 157.
 Tuberculosis, 165.
 Tumors of brain, 190; of nose, 376.
 Turkish bath, 78.
 Turpentine stupe, 222.
 Typhoid fever, 300; carried by milk, 56; disinfection in, 76.
 Tyrotoxicon, 55, 57.
 Ulcers, 237; of stomach, 173, 246.
 Urine, 136; blood in, 316; effect of drugs, 138; incontinence, 141; retention, 140; suppression, 140; observance of, 138; test for albumen, 140,

- 288; test for sugar, 140; variations in urine, 157.
- Uvula, inflammation, 379.
- Uterine hemorrhage, 316.
- Vaccination, 212.
- Vaginal douche, 121.
- Vegetables, 54.
- Ventilation, 103; methods, 29.
- Verdigris, poisoning, 341.
- Vermiform appendix, 180.
- Vesicants, 123.
- Vessels, lymphatic, 39.
- Vinegar, 65.
- Vomiting, 38, 244; of blood, 315; black vomit, 147.
- Warming of houses, 31.
- Warmth, degree of for healthy person, 31; for sick persons, 32; kinds, 32.
- Water, 22; artesian, 24; distilled, 24; drinking, 22; ground, 21; rain, 22; river and lake, 24; well and spring, 23; quantity of for healthy men, 22; sources of supply, 22.
- Water closets, 26.
- Wells, away from vaults, 26.
- Wet pack, 132.
- Wheat, 48.
- Whiskey, 61; dietetic use, 62.
- Whooping cough, 294.
- Wild hairs, 353.
- Wines, 61; dietetic use, 62; whey, 113; mulled, 116.
- Worms, pin, 255; round, 255; tape, 254; thread, 255.
- Wounds, 317; treatment of, 318; poisoned, 321.

APPENDIX.

In addition to the book and cabinet which is furnished by the Home Remedy Company, the company also furnish at wholesale rates all drugs and drug supplies which may be ordered from them. A list of drugs and appliances is placed in this Appendix with prices attached. Everything that is offered in this part of the book is guaranteed to be first-class in every particular and just as represented. Should any article prove defective or not as here represented the purchase price will be gladly refunded. The Home Remedy Company will furnish anything in the drug line whether it is listed here or not and will be glad to quote prices at any time. The prices which are here given are net prices and the rule of the Company is that the cash must accompany the order. By doing this and not carrying any accounts the Company is able to make better prices to its patrons.

In ordering goods address all orders or communications of any sort to the

HOME REMEDY COMPANY.

DRUGS.

The prices which are given in the following list do not include the carrying charges. On all dry drugs add two cents per ounce to the prices given; on quantities of one pound or more, add fifteen cents per pound. All liquid drugs must be put into glass bottles and require a special mailing box to meet the requirements of the postoffice authorities. Add four cents per ounce for postage and packing, to the prices given on all liquid drugs which are to be sent by mail. Quantities of one-half pint or more will be sent by express or freight and no charge will be made for packing.

DRY DRUGS.

	<i>Price Per Ounce.</i>	<i>Price Per Pound</i>		<i>Price Per Ounce.</i>	<i>Price Per Pound</i>
Acid, oxalic.....	\$.04	\$.20	Glue.....	\$.04	\$.24
Acid, tannic.....	.15	1.40	Indigo.....	.09	1.00
Acid, tartaric.....	.06	.56	Insect powder.....	.06	.54
Allspice.....	.04	.26	Mustard seed, white	.03	.15
Allspice, powdered.	.05	.28	Mustard seed,		
Alum.....	.02	.12	ground pure.....	.04	.34
Arrowroot.....	.03	.15	Nutmegs.....	.08	.72
Arsenic.....	.03	.16	Orange peel, sweet.	.04	.28
Cubeb berries.....	.04	.24	Paraffine.....	.04	.20
Blue vitriol.....	.03	.15	Pepper, black.....	.04	.28
Borax, refined.....	.03	.16	Pepper, black,		
Buchu leaves.....	.06	.54	ground.....	.05	.30
Camphor gum.....	.08	.87	Pepper, white.....	.05	.36
Caraway seed.....	.03	.16	Pepper, white,		
Celery seed.....	.04	.20	ground.....	.06	.44
Chalk, powdered...	.02	.12	Plaster Paris, extra		
Charcoal (animal).	.02	.13	fine.....	.02	.06
Cinnamon bark....	.05	.48	Rock candy, pure..	.03	.16
Cloves.....	.04	.20	Sassafras bark.....	.03	.16
Cocoa butter.....	.08	.72	Strychnine,		
Copperas.....	.02	.08	one-eighth ounce	.27	
Cream tartar.....	.05	.43	Sulphur.....	.02	.07
Cuttle fish bone....	.05	.40	Tapioca.....	.03	.11
Epsom salts.....	.03	.08	Tar, pure pine, one		
Flax seed, ground..	.03	.09	pint can.....	.10	
Gelatine sheet.....	.07	.67	dozen cans.....		1.00
Ginger.....	.04	.20			

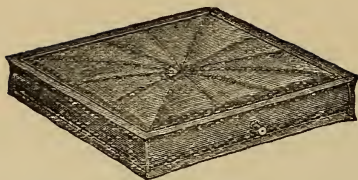
LIQUID DRUGS.

	<i>Price Per Ounce.</i>	<i>Price Per Pound</i>		<i>Price Per Ounce.</i>	<i>Price Per Pound</i>
Acid, carbolic, pure	\$.14	\$ 1.60	Oil, olive.....	.04	.28
Acid, carbolic, com- mon.....	.04	.20	Oil, olive (for salads)	.06	.60
Acid, muriatic (hy- drochloric) pure..	.05	.38	Oil, peppermint....	.24	
Acid, muriatic, (hy- drochloric) com- mon .....	.04	.28	Oil, pennyroyal....	.27	
Acid, nitric, pure,..	.06	.40	Oil, sandalwood ...	.34	
Acid, sulphuric, pure	.05	.36	Oil, whale (sperm).	.04	.28
Acid, sulphuric, common .....	.04	.28	Oil, tansy.....	.24	
Ammonia water, strong .....	.03	.24	Oil, tar.....	.03	.20
Ammonia water, household.....		.07	Oil, wintergreen ...	.31	
Bay Rum .....	.06	.54	Turpentine, per pint, 15; per gal- lon 94.		
Extract witch hazel	.04	.28	Fluid Malt, per pint, 60; per five pints, \$2.50; per gallon, \$4.00.		
Glycerine, pure....	.05	.47	Fluid malt and iron, per pint, 63; per five pints, \$2.75; per gallon \$4.50.		
Oil, castor.....	.04	.34	Beef Iron and Wine, per pint, 60; per five pints, \$2.50; per gallon \$4.00.		
Oil, cloves.....	.16	1.92	Vanilla flavoring extract, per ounce, 20c; per two ounces, 35c.		
Oil, cocoanut.....	.05	.40	Lemon flavoring extract, per ounce, 10c; per two ounces, 20c.		
Oil, cod liver (Nor- wegian).....	.05	.40			

This is an incomplete drug list but it serves to show the prices of the Home Remedy Company. They carry a full line and will be glad to furnish prices at any time.

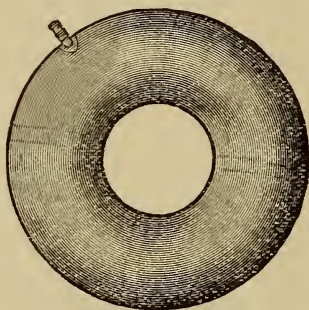
APPLIANCES.

Should any article which is purchased from the Home Remedy Company prove defective in any way it will gladly replace the article with a new one or will refund the purchase price. In ordering, order by number only.



NO. 101. SQUARE INVALID CUSHION.

No. 101. An air cushion is a great source of comfort to an invalid and is a very convenient and useful article at any time. These cushions will stand a great amount of wear. Price of square cushion, \$5.00. This must be sent by express or freight, carrying charges to be paid by purchaser.



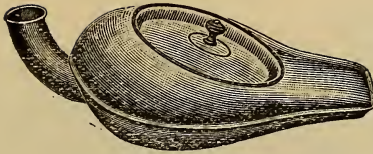
NO. 102. INVALID CUSHION,

No. 102. The cushion, which has long been called the invalid cushion, is the round one which is shown here. This cushion is a convenient one and is made in a number of different sizes, with prices as follows: 10 inch, \$1.75; 12 inch, \$2.00; 14 inch, \$2.15. This must be sent by express or freight, carrying charges to be paid by purchaser.



NO. 103. CHAIR CUSHION.

No. 103. This is a chair cushion which may be used for invalids, but is intended for general use. Price, \$4.25. This must sent by express or freight, carrying charges to be paid by purchaser.



NO. 104. WHITE ENAMEL BED PAN.

A bed pan is an article that is very useful in the sick room, and no family should be without one. The one illustrated is of metal, with a glazed white finish. Others which we carry are as follows:

No. 104.	White enamel Bed Pan, Price	\$5.00
No. 105.	White earthenware bed pan similar to cut.....	1.25
No. 106.	Rubber bed pan, oblong shape, no outlet	3.00
No. 107.	Same as No. 106 but with outlet tube	3.50
No. 108.	Plain round rubber bed pan, no outlet pipe.....	2.75

These must be sent by express or freight, carrying charges to be paid by purchaser.



NO. 109.



NO. 110.



NO. 111.

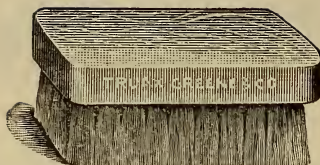


NO. 112.

RUBBER GLOVES OR MITTENS.

For persons who have to keep the hands much in water or who suffer from eczema of the hands, rubber gloves or mittens are a great aid. They are also useful when it is desired to have a glove to do dirty work with. The rubber glove is easily washed after the task is completed. The line of gloves which is here offered is complete and the quality is of the best. In ordering state the size of glove ordinarily worn, or if it is not possible to do this, place a string around the hand just back of the knuckles and tie a knot in the string where the string meets on the back of the hand; send this string for size.

No. 109, price per pair, \$1.45. No. 110, price per pair, men's, \$1.95; ladies', per pair, \$1.60. No. 111, price per pair, \$2.50. No. 112, price, \$1.25. No. 113, not illustrated, thin, pure gum, skin tight glove, price per pair, \$1.85. No. 114, ordinary rubber finger cots, not illustrated, price per dozen, 50 cents. Postage and packing, gloves per pair, 14 cents; cots, per dozen, 9 cents.



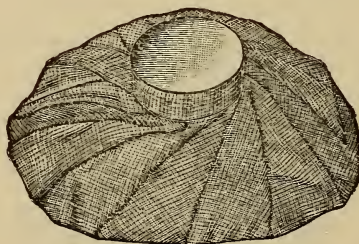
NO. 115. VEGETABLE FIBRE HAND-BRUSH

No. 115. This is a vegetable fiber hand-brush; it is a good one and will wear a long time. Price, 10 cents, or 85 cents per dozen. Postage and packing, 3 cents each.



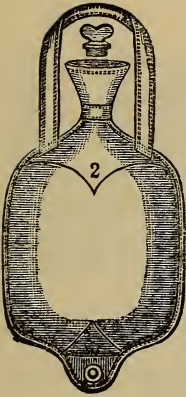
NO. 116. CHEMICALLY PURE SOAP.

No. 116. Very often it is desired to use soap that is known to be perfectly pure and free from all sorts of foreign material; such a soap is the chemically pure soap which is here offered and that it may remain pure it is put up in tubes. Price, 30 cents per tube, or \$2.50 per dozen tubes. Postage and packing per tube, 3 cents.

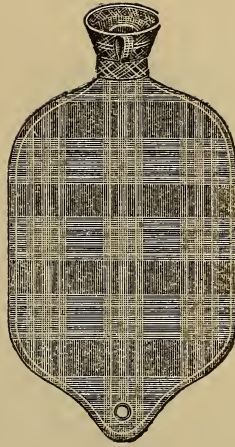


NO. 117. ICE BAG.

No. 117. This is a very compact and convenient ice bag; the body is made from good rubber cloth and yet it is pliable enough to fit almost any part of the body. The bag will hold quite a supply of ice and is a serviceable bag in every way. Price, \$1.00. Postage and packing, 12 cents.



No. 118.



No. 119.

HOT WATER BOTTLES.

A hot water bottle of some sort is used many times a year in every family. The general usefulness of these appliances is so apparent that it will not be necessary to describe the uses to which they may be put. No 118. illustrates the plain water bottle while No. 119 shows the flannel covered bottle. The prices are here given:

Ordinary quality rubber, 1 quart bottle.....	\$1.15
“ “ “ 2 “ “	1.25
“ “ “ 3 “ “	1.45
“ “ “ 4 “ “	1.60
Best quality rubber, 1 quart bottle.....	\$1.25
“ “ “ 2 “ “	1.45
“ “ “ 3 “ “	1.60
“ “ “ 4 “ “	1.75
Flannel covered, 1 quart bottle.....	\$1.60
“ “ 2 “ “	1.75
“ “ 3 “ “	1.95
“ “ 4 “ “	2.10

Postage and packing, 1 quart, 13 cents; 2 quart, 15 cents; 3 quart, 19 cents; 4 quart, 22 cents.

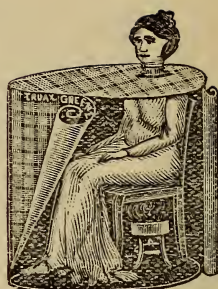


No. 120. BATH THERMOMETER.

No. 120. Something which is needed in every family and which is seldom found is a reliable bath thermometer. Such an instrument is here offered. Price, 35 cents. Extra fine quality, \$1.25. Postage and packing 8 cents in each case.



NO. 121.



NO. 122.

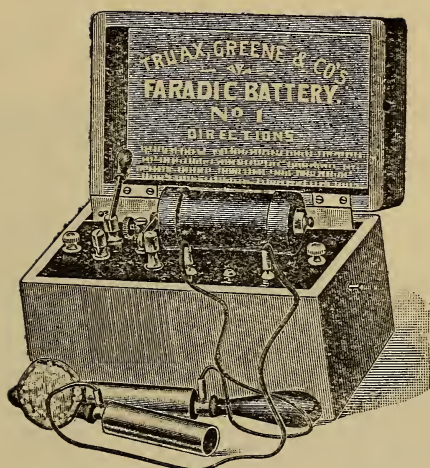
VAPOR BATH APPARATUS.

During the past few years great strides have been made in medicine, and in no department has a greater amount of good resulted from the experiments than in the use of hot and medicated air for the cure of disease. A great deal has been written on this subject and nearly everyone understands the use and management of the bath cabinet. The cabinet is used to good advantage in all cases of muscular rheumatism; in cases of stiffness of the joints, soreness of the muscles, swelling of the limbs or of any part of the body; in a great many skin diseases; as a method of thoroughly opening up the pores of the skin when it is desired to do this for any reason whatever. Many other uses for the bath cabinet arise which are not even thought of until the cabinet is at hand. Be it sufficient to say that it will be a much used appliance if placed in the home.

No. 121 illustrates a cheap vapor bath apparatus with heater and vaporizing pan complete. It is well made, but is not so complete as a more expensive apparatus; it is so arranged that it attaches to a chair. Price, complete, \$3.50. This must be sent by express or freight, carrying charges to be paid by purchaser.

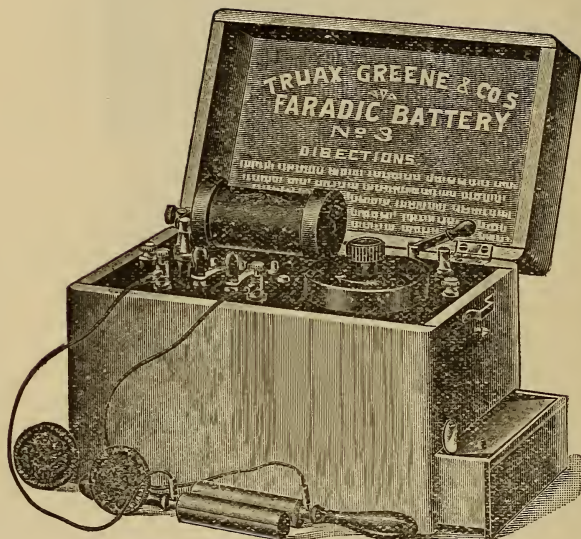
No. 122 illustrates a more complete apparatus and in fact this apparatus is just as complete and just as serviceable as the very expensive cabinets. This cabinet is really a very fine apparatus.

Price, complete with heater and vaporizing pan, \$6.75. This must be sent by express or freight, carrying charges to be paid by purchaser.



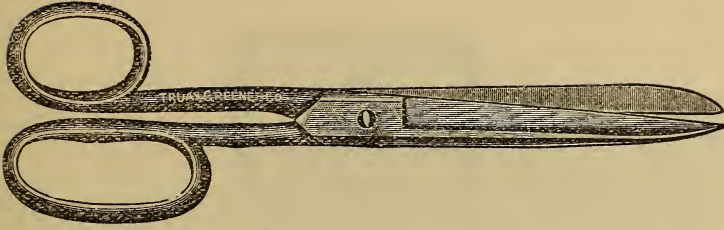
No. 123. SMALL FAMILY BATTERY.

No. 123. Many times the need of a small battery is felt, and yet the ordinary price asked for batteries makes the purchase of one entirely out of the question. Batteries are useful in any form of paralysis; are used to strengthen weakened muscles, to tone up the nervous system and as a curative agent in many forms of rheumatism. The battery illustrated above is a small compact family battery with a dry cell; there is no fluid to spill or to be changed; the battery is renewed by placing a new dry cell in the place of the old one. The battery has three currents; has a foot plate, one sponge disc, one pair metal and wood handles, one pair conducting cords, and is put up in a finely finished hardwood walnut stained case, with strap for carrying. The dimensions of the case are $4\frac{1}{2} \times 5 \times 7\frac{1}{4}$ inches. Price complete, \$6.00. This must be sent by express or freight, carrying charges to be paid by purchaser.



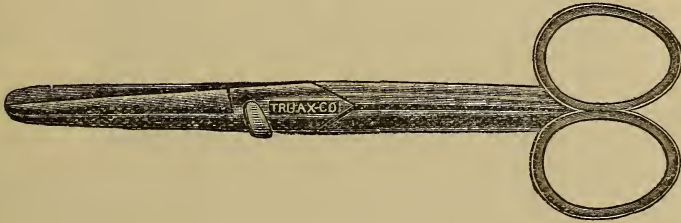
NO. 124. HIGHER PRICED BATTERY.

No. 124. This is a higher priced battery and is one that is intended especially for the use of physicians. It is put up in hardwood, walnut stained box and has strap for carrying. It is furnished with foot piece, metal handles, sponge discs and conducting cords. It has a double switch by means of which five different currents may be obtained. The size of the battery is 6x8x10 inches. Price complete, \$9.50.



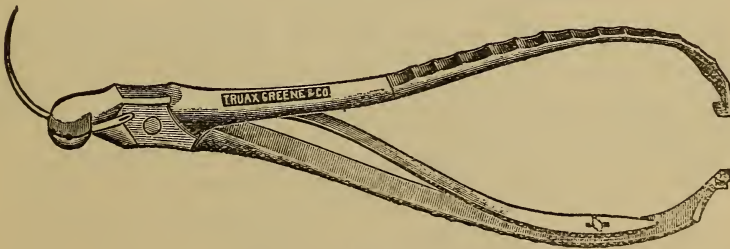
NO. 125. PLAIN SHEARS.

No. 125. This cut shows a pair of plain shears. They are of extra good quality and are not a cheap shears. To one wanting something that is really good these shears will fill all requirements. Price, \$1.25. Postage and packing, 16 cents.



NO. 126. OPERATING SCISSORS.

No. 126. This is a pair of regular operating scissors; the material is of the best, the edges are sharp and will cut at the very point of the scissors. For a superior pair of scissors they are hard to equal. Price, 4½ inches long, 80 cents; 5 inches, 85 cents; 5½ inches, \$1.00; 6 inches, \$1.10; 6½ inches, \$1.25. Postage and packing 16 cents.



NO. 127. NEEDLE HOLDER.

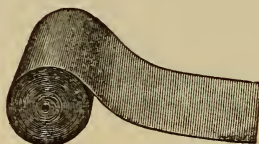
No. 127. In surgical sewing a needle holder is used in the place of a thimble; this illustration shows such a needle holder. Price, \$2.50. Postage and packing, 16 cents.



NO. 128. STERILIZED GAUZE.

No. 128. In a number of places in the book sterilized gauze is mentioned. Sterilized and medicated gauzes are used for dressings for wounds and as dressings in any place where a thoroughly pure and clean dressing is required. The gauze is made from a thin cotton gauze and is either plain or medicated. Gauze is considered by all medical men to be the best dressing that can be used. Prices are as follows: Half yard plain bleached and sterilized gauze, as shown in cut, 9 cents; dozen half yards, each one put up in a roll by itself, 80 cents. Postage and packing, single roll, 2 cents; dozen rolls, 16 cents.

Same gauze in one yard roll, 20 cents. One yard roll medicated with carbolic acid, 25 cents. One yard roll medicated with iodoform, 40 cents. One yard roll medicated with boracic acid, 25 cents. One yard roll medicated with corrosive sublimate, 25 cents. Postage and packing, each, 6 cents.

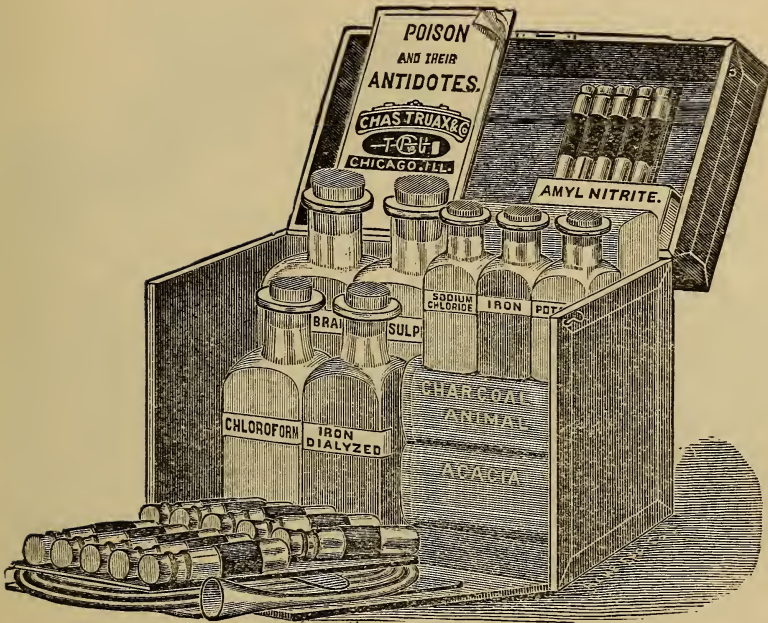


NO. 129. RUBBER BANDAGE.

No. 129. In strains of the muscles, weak limbs, varicose veins, weak joints, etc., some support is needed, and the support usually recommended by the family physician is the rubber bandage. The bandages which are here offered are manufactured from pure gum and are strictly first class in every particular. Prices are as follows:

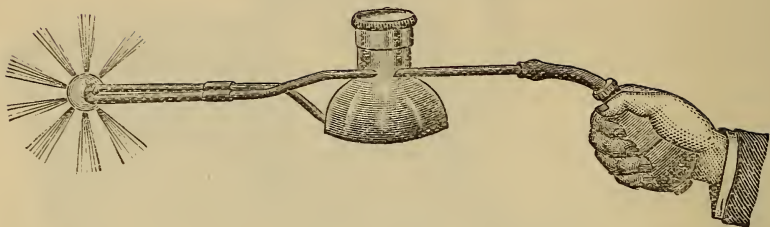
2 inches wide by 6 feet long.....	\$.60
2 " " " 9 " " .....	.90
2 " " " 12 " "	1.15
2½ " " " 9 " "	1.10
2½ " " " 12 " "	1.40
3 " " " 9 " "	1.30
3 " " " 12 " "	1.75

Postage and packing, each, 8 cents.



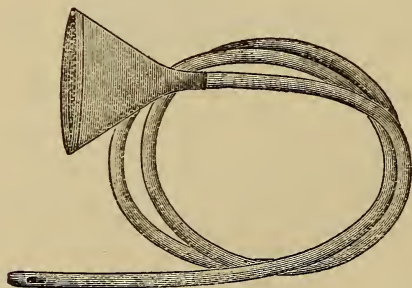
No. 130. POISON CHEST.

It is seldom indeed that the remedies which are required in a case of poisoning are at hand, and it is to supply the remedies in a form which may be easily and quickly got that this chest is prepared. One such chest among a number of families should be sufficient and should a case of poisoning occur the chest can be easily and quickly got and the remedies and instructions as to their use can be had before it is too late. The quickness with which treatment is given is everything in a case of poisoning. The chest is intended for emergency cases, and contains twenty-five well selected antidotes to poisons, a stomach pump, and a little book (edited by Dr. Webster), containing a list of the remedies in the chest, their doses and how to give them, and a list of all poisons, their symptoms and signs and the treatment of each one. The chest is well put up and is cloth covered. Price, \$6.50; without stomach pump, \$5.00. This chest must be sent by express or freight, carrying charges to be paid by purchaser.



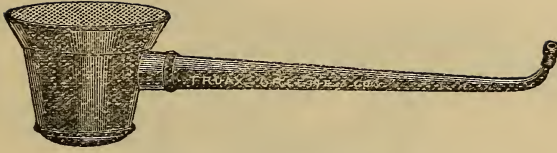
NO. 131. ATOMIZER.

No. 131. It is very often desired to have an atomizer which will throw an oil spray in such a manner that it will reach the smallest cavities of the nose, throat or lungs; such an atomizer is the one illustrated. This is not a good atomizer for a watery solution, but it will throw an oil spray better than any other atomizer made. It will throw a spray in each direction that is indicated in the cut and the spray will be so fine that it will float in the air no matter how heavy the oil used may be. This is a first class instrument in every respect and is one that is a great favorite among the doctors. Price, \$1.60. Postage and packing, 12 cents.



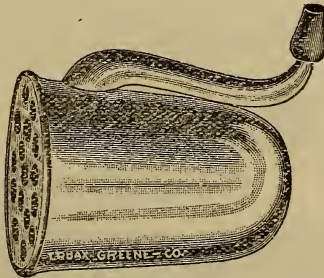
NO. 132. STOMACH PUMP.

No. 132. This illustration shows a stomach pump. To operate a stomach pump, oil the tube well and carefully insert in the throat. With a little practice a patient will learn to swallow the tube with as much ease as a piece of food is swallowed. The pump is made from soft rubber. Price, \$1.25. Postage and packing, 28 cents.



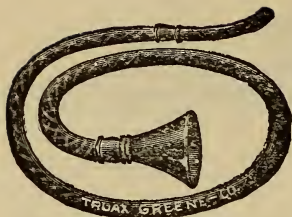
NO. 133. HEARING HORN.

No. 133. A great many people and old persons especially are hard of hearing, and in many instances this difficulty is incurable. Nothing adds more to the comfort of the person than a hearing horn of some sort; it not only assists the person to hear but also lets strangers know that the person has some trouble with the hearing and they can then take more care in speaking and not cause so much general annoyance. Very grave mistakes are sometimes made by persons who have deficient hearing, and it is a duty they owe to their fellow men that they should use every means in their power to better their condition. A hearing horn is a very efficient method of bettering this annoying condition. No. 132 is a horn that is very largely used and is a thoroughly good instrument. Price, in black japanned tin, \$5.00. This must be sent by express or freight, carrying charges to be paid by purchaser.



NO. 134. SMALL HEARING HORN.

No. 134. This illustrates a small hearing horn which may be carried in the hand and which is not very noticeable. It is a serviceable horn and is either black or nickel plated. It is also made in three sizes. In ordering state whether you want small, medium or large and whether black or nickel-plated. Price, \$3.75 each. Postage and packing, 26 cents.

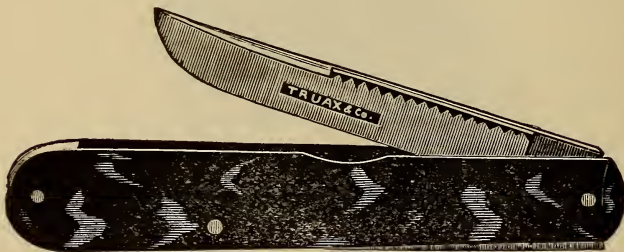


NO. 135. CONVERSATION TUBE.

No. 135. Where persons are so hard of hearing that even loud conversation is not fully understood the conversation tube here illustrated is a very convenient appliance. The patient places one end in the ear and the person speaking to him places the mouth very near to the funnel end and talks directly into the tube. For the purpose for which this tube is intended it is all that could be asked. Price, conical tube of mohair 3 feet long, \$3.75; same tube, but 5 feet long, \$4.40; conical tube of silk 3 feet long, \$4.40; same tube, but 5 feet long, \$5.00; straight tube of mohair 3 feet long, \$2.25; same tube but of silk, \$2.75. Postage and packing, 28 cents.



NO. 136.



NO. 137.

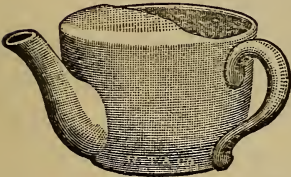
SHARP CORN KNIVES.

A sharp corn knife is something that is very often wanted and is seldom at hand. The cuts illustrate two forms. Prices, No. 136, 75 cents; No. 137, \$1.75. Postage and packing, 6 cents each.



No. 138. PAIR OF NAIL CUTTERS.

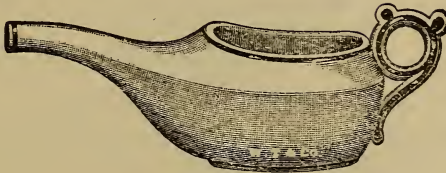
No. 138. This is an illustration of a pair of nail cutters. They can be used in either hand and are much more convenient than a knife. Price, \$1.50. Postage and packing, 8 cents.



No. 139.



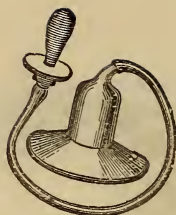
No. 140.



No. 141.

FEEDING DISHES.

In the care of very sick persons it is oftentimes difficult to feed them, as they are frequently not able to sit up or to even raise the head. For the purpose of feeding and of giving drinks to sick persons, feeding dishes have been devised, and three such dishes are shown in the illustrations. The prices are: No. 139, plain white feeding dish with side spout, 45 cents each; No. 140, feeding dish with side spout, blue decoration and gold lines, 70 cents each; No. 141, long straight spout feeding dish, plain white, 45 cents each; same dish, but flowered and with gold lines, 70 cents each. Postage and packing, 16 cents.



No. 142.



No. 143.

NURSING NIPPLES.

In nursing mothers the nipples are sometimes in such a condition that they need some sort of protection. The nipple shields shown are for the purpose of furnishing this sort of protection. Prices, No. 142, 15 cents each; No. 143, 13 cents each. Postage and packing, 3 cents.



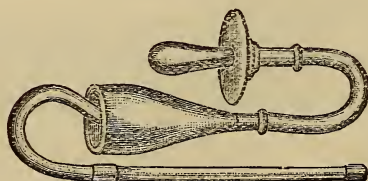
No. 144. PLAIN NURSING BOTTLE.

No. 144. Plain nursing bottle without fitting. Price, 9 cents each. Postage and packing, 9 cents.



No. 145. FLINT GLASS NURSING BOTTLE.

No. 145. Flint glass nursing bottle with fitting complete. Price, 18 cents each. Postage and packing, 11 cents.



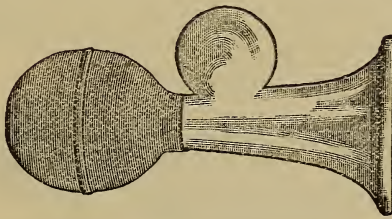
No. 146. BEST NURSING BOTTLE FITTING.

No. 146. Best nursing bottle fitting. Price, 16 cents each. Postage and packing, 6 cents.



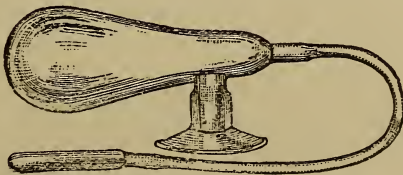
No. 147. PLAIN NURSING BOTTLE FITTING.

No. 147. Plain nursing bottle fitting. Price, 8 cents each. Postage and packing, 6 cents.



No. 148. ENGLISH BREAST PUMP.

No. 148. English breast pump, a good article, heavy glass. Price, 27 cents each. Postage and packing, 9 cents.



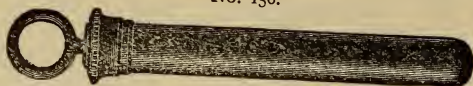
No. 149. ECONOMIC BREAST PUMP.

No. 149. Economic breast pump. A very satisfactory pump. Price, 18 cents each. Postage and packing, 9 cents.

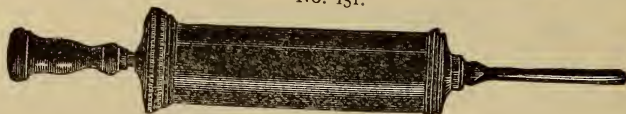
APPENDIX.



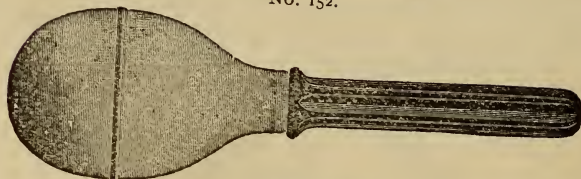
No. 150.



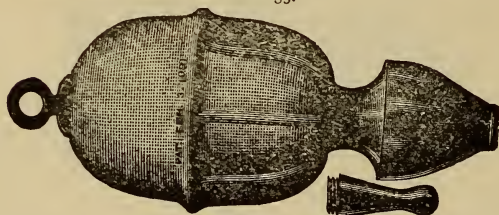
No. 151.



No. 152.

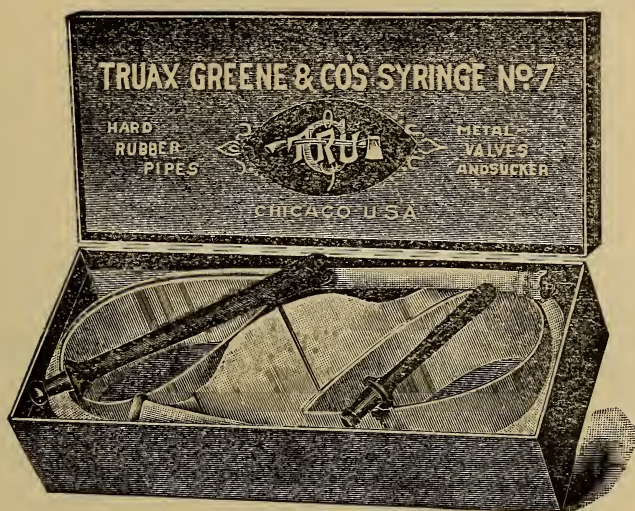


No. 153.



No. 154.

No. 155.
SYRINGES.



No. 156.

The Home Remedy Co. carries a full line of syringes of all sorts and illustrates a few here. If you do not see the style that you want write to the company and prices will be sent. The goods are all first class and as good as can be had in the various grades of rubber. The price of course is regulated by the grade of rubber. The prices are as follows:

No. 150. Small hard rubber syringe, 65 cents each. Postage and packing, 6 cents.

No. 151. Two ounce female, hard rubber, 70 cents each. Postage and packing, 12 cents.

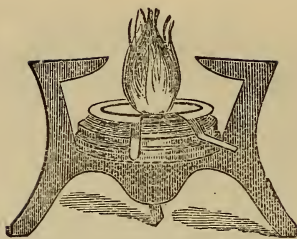
No. 152. Two ounce rectal, extra quality, \$1.00 each. Postage and packing, 17 cents.

No. 153. Fluted female syringe, six ounce, \$1.00 each. Postage and packing, 17 cents.

No. 154. Ladies' perfect syringe, \$2.00. Postage and packing, 17 cents.

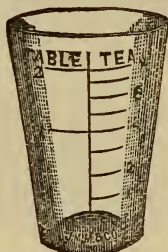
No. 155. Family syringe, good quality rubber, with slip pipes and hard rubber valve chambers. Put up in pasteboard box with hinged cover. Every syringe warranted. Price, 75 cents. Postage and packing, 16 cents.

No. 156. Family syringe cheap quality, a fair grade of rubber, but cannot be warranted. A very good syringe for the money. Put up in plain pasteboard box. Price, 50 cents. Postage and packing, 16 cents.



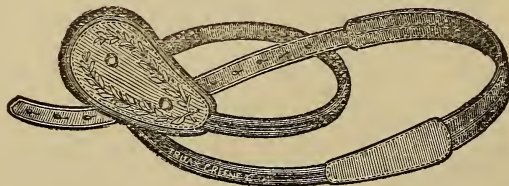
No. 157. ALCOHOL STOVE.

No. 157. Many times in the sick room it is necessary to keep a small amount of water hot for the purpose of making hot applications or for other purposes, or it may be necessary to heat food often as in the case of a sick infant who is bottle fed. To meet such requirements an alcohol stove is a great convenience. Such a stove is illustrated. Price, 25 cents. Postage and packing, 11 cents.



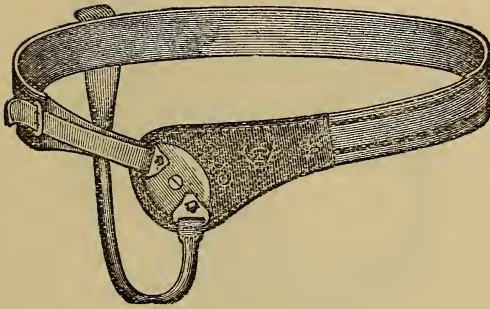
No. 158. MEDICINE GLASS.

No. 158. Ordinary medicine glass. Price, 6 cents each. Postage and packing, 6 cents.



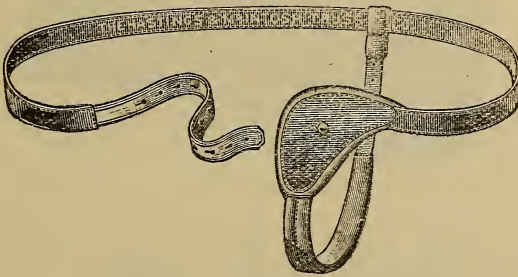
No. 159. FINE FRENCH TRUSS.

No. 159. Fine French truss, either right or left. Give waist measure. Price, \$3.00 each. This must be sent by express or freight, carrying charges to be paid by purchaser.



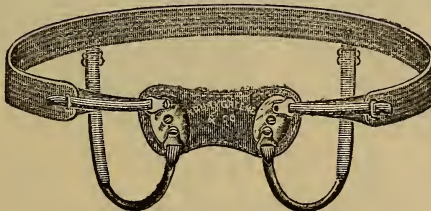
No. 160. ELASTIC TRUSS.

No. 160. Elastic truss, right or left. Give waist measure. Price, \$2.00. This must be sent by express or freight, carrying charges to be paid by purchaser.



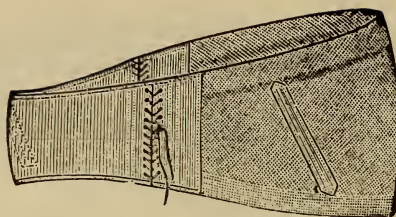
No. 161. FINE GERMAN TRUSS.

No. 161. Fine German truss with under strap, right or left. Price, \$1.75. This must be sent by express or freight, carrying charges to be paid by purchaser.



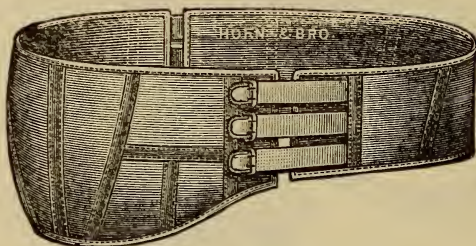
No. 162. DOUBLE ELASTIC TRUSS.

No. 162. Double elastic truss. Price, \$4.00. This must be sent by express or freight, charges to be paid by purchaser.



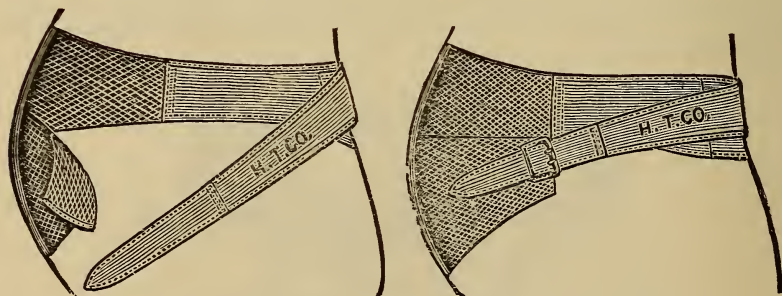
No. 163. SILK ABDOMINAL SUPPORTER.

No. 163. All silk abdominal supporter, to lace. Will lace in either side or back. Price, \$10.00 to \$15.00, according to size. Made from cotton, price, \$8.00 to \$10.00, according to size. This must be sent by express or freight, carrying charges to be paid by purchaser.



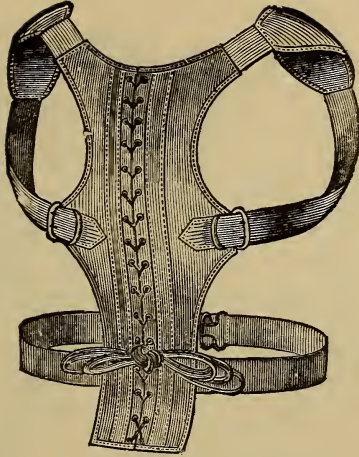
No. 164. STANDARD ABDOMINAL SUPPORTER.

No. 164. Standard abdominal supporter made from moleskin. Price, \$4.00. This must be sent by express or freight, carrying charges to be paid by purchaser.



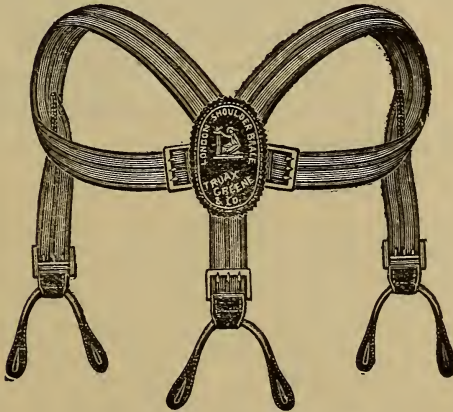
No. 165. ABDOMINAL SUPPORTER WITH SILK ELASTIC FRONT.

No. 165. Abdominal supporter with silk elastic front. Price, \$8.00 to \$12.00, according to size. This must be sent by express or freight, carrying charges to be paid by purchaser.



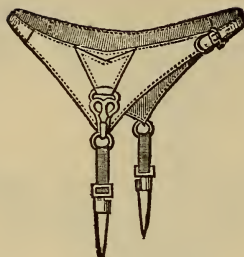
No. 165. CORSET SHOULDER BRACE.

No. 165. Corset shoulder brace. Price, \$1.50. This must be sent by express or freight, carrying charges to be paid by purchaser.



No. 166. SUSPENDER SHOULDER BRACE.

No. 166. Suspender shoulder brace. Price, \$1.50. Postage and packing, 12 cents.



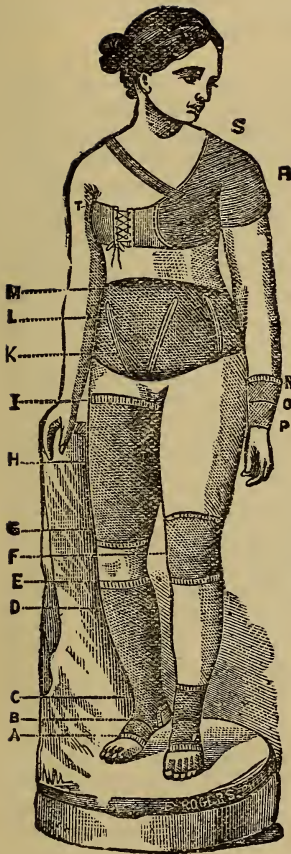
No. 167. LINEN AND ELASTIC MENSTRUAL BELT.

No. 167. Linen and elastic menstrual belt. Price, 75 cents. Postage and packing, 12 cents.

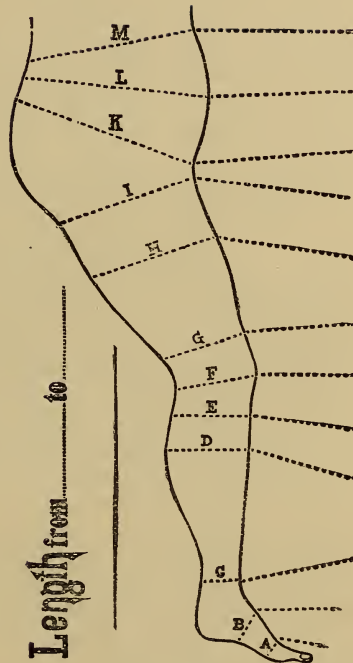


No. 168. SANITARY PADS.

No. 168. Sanitary pads for menstrual periods. Price, 60 cents per dozen. Postage and packing, 16 cents.



No. 169.



No. 169½.

ELASTIC STOCKINGS, BELTS AND SUPPORTERS.

Elastic stockings, belts and supporters are made for the relief and support of varicose veins, weak, swollen or ulcerated limbs, corpulency, abdominal weakness and tumors. These goods are of great value in the treatment of varicose veins, as they give a firmness and a support to the veins which is impossible to get in any other way. In any case where the limbs are swollen or ulcerated from any cause whatever the elastic goods will be of immense value. As a support to the abdomen in very fleshy persons the elastic supporter is a source of much comfort. For the support of old dislocations there is nothing that anywhere near equals these goods, and even in recent dislocations they are a means of safety and will very often prevent a second dislocation. As a support

to weak joints when it is desired to tax them somewhat heavily the elastic goods are the only ones that are of real benefit.

Directions for applying elastic stockings:

Turn the stocking inside out down to the part which covers the foot. Take hold with the thumbs inside this folded part, stretching and drawing it on to the foot. Take hold with the thumb of one hand (inside the fold) and with the other thumb (inside the fold) at the heel, then stretch and roll it over the heel. Take hold at the top of the stocking and turn it over the foot as far up the limb as it can be drawn without forcing it. Turn down the top of the ankle and insert the thumbs on either side between the limb and the fold in the stocking; stretch and gradually roll it (repeating the process as often as is necessary) until it reaches the proper position without a wrinkle. It should always be worn over a thin stocking.

All goods are manufactured to order and the best of material is used.

An extra charge will be made for extra large sizes.

DIRECTIONS FOR MEASUREMENT.

The measurements should always be taken in the morning when the parts are smaller.

Give exact measurments. We allow for pressure.

Be sure and indicate whether you want silk or cotton goods.

For a thigh stocking—Circumference at A, B, C, D, E, F, G, H, I. Length from floor to F, and from F to I.

For a thigh legging—Circumference at C, D, E, F, G, H, I. Length from C to F and from F to I.

For a thigh knee cap—Circumference at E, F, G, H, I. Length from F to I.

For a thigh piece—Circumference at G, H, I. Length from G to I.

For a knee stocking—Circumference at A, B, C, D, E, F, G. Length from floor to F and from F to G.

For a knee legging—Circumference at C, D, E, F, G. Length from C to F and from F to G.

For a knee cap—Circumference at E, F, G.

For a garter stocking—Circumference at A, B, C, D, E. Length from floor to E.

For a garter legging—Circumference at C, D, E. Length from C to E.

For an anklet—Circumference at A, B, C.

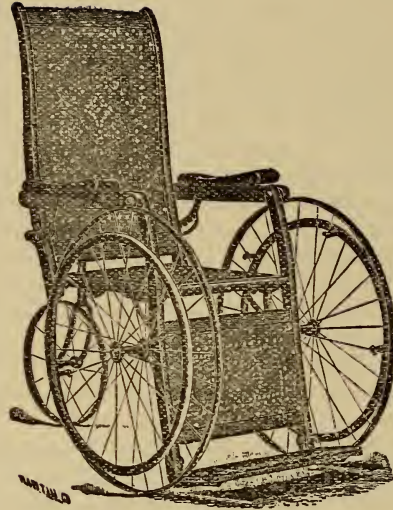
For a wristlet—Circumference at N, O, P. Length from N to P.

For an abdominal belt—Circumference at K, L, M, and width in front.

For a shoulder cap—Circumference of chest at T; circumference from armpit at S, and from armpit to R; circumference of arm three inches below armpit. State whether for right or left shoulder.

PRICES FOR SINGLE STOCKINGS OR PIECES.

		<i>Postage and Packing.</i>
Thigh stocking, extra heavy silk.....	\$9.00	.36
Thigh stocking, fine silk.....	7 50	.36
Thigh stocking, cotton.....	5.75	.36
Thigh legging, extra heavy silk.....	7.50	.32
Thigh legging, fine silk.....	6.00	.32
Thigh legging, cotton.....	5.25	.32
Thigh knee cap, extra heavy silk.....	5.00	.26
Thigh knee cap, fine silk.....	4.00	.26
Thigh knee cap, cotton.....	3.50	.26
Thigh piece, extra heavy silk.....	3.00	.22
Thigh piece, fine silk.....	2.50	.22
Thigh piece, cotton.....	2.25	.22
Knee stocking, extra heavy silk.....	6.50	.26
Knee stocking, fine silk.....	5.00	.26
Knee stocking, cotton.....	3.75	.26
Knee legging, extra heavy silk.....	5.00	.26
Knee legging, fine silk.....	4.00	.26
Knee legging, cotton.....	3.50	.26
Knee cap, extra heavy silk.....	2 50	.16
Knee cap, fine silk.....	2.00	.16
Knee cap, cotton.....	1.75	.16
Garter stocking, extra heavy silk.....	4.00	.26
Garter stocking, fine silk.....	3.00	.26
Garter stocking, cotton.....	2.50	.26
Garter legging, extra heavy silk.....	2.50	.22
Garter legging, fine silk.....	2.00	.22
Garter legging, cotton.....	1.75	.22
Anklet, extra heavy silk.....	2.50	.13
Anklet, fine silk.....	2.00	.13
Anklet, cotton.....	1.75	.13
Wristlets, silk.....	\$ 1.00 to 2.00	.13
Shoulder cap, heavy silk.....	8.00	.28
Shoulder cap, fine silk.....	7.00	.28
Shoulder cap, cotton.....	6.00	.28
Abdominal supporters, silk.....	\$10.00 to 15.00	.36
Abdominal supporters, cotton.....	8.00 to 10.00	.36



NO. 170. RECLINING ROLLING CHAIR.

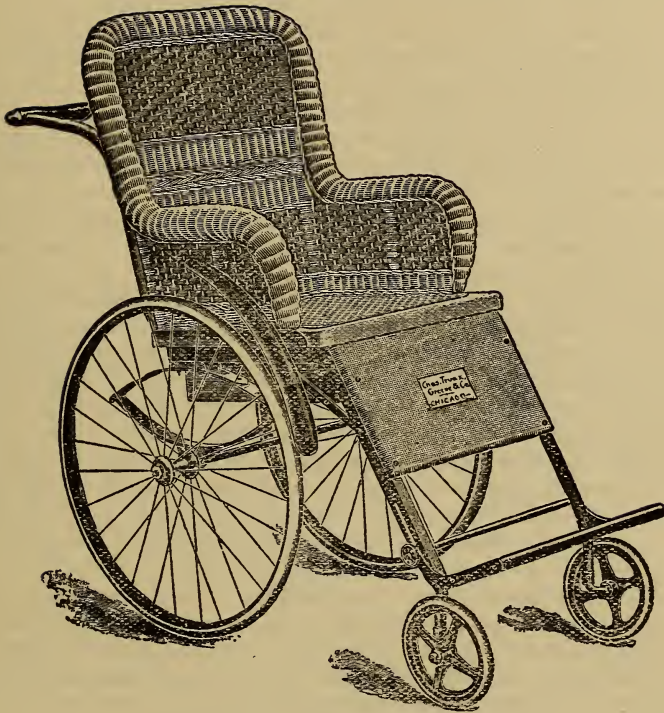
This cut represents a new style of reclining rolling chair. It is so balanced that the occupant can assume any desired position by raising or lowering a ratchet. The frame is made of oak with perforated veneer seat, back and leg rest. The chair is made in two sizes.

Child's chair, seat 16x15 inches, back 19 inches high, front wheels 24 inches, rear wheel 12 inches, will pass through a 26-inch doorway.

Price, with steel suspension wheels, \$21.00; with steel suspension wheels, cushion tires, \$32.50.

Adult's chair. Seat 18x17 inches, back 29 inches high, front wheels 28 inch, rear wheel 14 inch; will pass through a 29-inch doorway.

Price, with steel suspension wheels, \$26.00; with steel suspension wheels, cushion tires, \$39.75; ball bearing wheels, wood rim, cushion tires, \$46.50; ball bearing wheels, wood rims, pneumatic tires \$57.50. Loose cushions for back, seat and leg rest, in raw silk, \$13.50. Loose cushions for back seat and leg rest in morocco leather or mohair plush, \$19.50. There is no pneumatic tire on the rear wheel. This must be sent by express or freight, carrying charges to be paid by purchaser.



No. 171. WORLD'S FAIR ROLLING CHAIR.

This cut represents the well known World's Fair rolling chair. This chair was one of the greatest conveniences at the Columbian Exposition. This is the same style chair, new, fitted with ball bearings, cushion tire wheels, and is exactly the same construction throughout. This chair is well adapted for both indoor and outdoor use, and for comfort and durability it cannot be excelled.

Price, complete, with ball bearings, cushion or pneumatic tires, on large wheels, push handle and fenders, \$62.00. This must be sent by express or freight, carrying charges to be paid by purchaser.

THE MODERN CURE FOR OVERFATNESS.

A well known author upon this subject says:

That you may have a clearer conception of what is to follow, I shall first remind you that, by the natural law of proportion, fat should constitute about the one-fifteenth or one-twentieth of one's weight, and that a person's heft may vary ten or fifteen pounds either way from the standard of weight to height without its being significant of either discomfort or disease; also that a certain quantity of fat is a blessing, as it not only improves personal appearance, but is necessary to protect the various organs and to maintain their temperature, and also to serve as nutrition in time of need. For these purposes it is stored in cells in various parts of the body, but more plentifully in some regions than in others.

If any one has a much less proportion than one-twentieth, leanness, lankiness or emaciation is observable; a very much greater proportion than say one-ninth or one sixth constitutes corpulence, obesity or overfatness, and although stoutness to a moderate degree is considered an element of good health and indicative of the successful working of one's physiology, yet fatness alone is a very poor criterion of health; but, on the contrary, it is an element that possesses the power for serious mischief, because a very great amount of fat necessarily creates heaviness, impedes respiration, circulation, locomotion, digestion and other vital functions to such a degree that the person who carries such a load of bulky ballast is more burdened than blessed.

In very fat persons all the cellulo-adipose structures are filled to distention, more noticeably about the subcutaneous tissues, the breast and the abdominal walls; also the abdomen about the intestines, on the surface of the heart and about the kidneys; and if this morbid accumulation grows to be excessive these all become buried in fat, which mechanically interferes with both function and nutrition.

According to my observations there are four common causes of overfatness:

Congenitally small lungs with defective oxygenating capacity.

Eating excessively of all kinds of food.

Want of lung expending exercise.

Alcoholics to excess.

There are numerous well known agents that more or less effectually reduce surplus fat, and also counteract its return. Among these, iodine, bromine, mercury, lead, arsenic, liquor potassium, lemon juice, sour wines, vinegar, purgatives, sweating, semi-starving, baths of various kinds, smoking and chewing, fish diet, bladder wrack, phytonllacca, gulf weed, and various quack nostrums, each have more or less reputation for diminishing weight.

Some of these when taken sparingly or for a brief while, have proper

place and useful power, but unfortunately, when used in quantities sufficiently strong, and long enough continued, to destroy any considerable amount of fatty tissue, they likewise injure other structures; therefore, are necessarily dangerous to health. Besides, they all act either by saponifying the fat or by producing numerical cell-atrophy, either of which exerts powerful influence on the lymphatic and absorbent systems, not only cause re-absorption and destruction of olein, stearin, margarin, proto plasm, nuclei, and other physiological constituents of the fat cells, but go further, and annihilate myriads of cell membranes, red blood globules and other normal and essential elements of the economy; and as these perish, all histologists know, vitality is reduced and health is impaired.

It is also well known that while, affecting the fat, many of these articles also act as slow poisons, and damage or ruin the alimentary mucous membranes and the functions of digestion, and thus cause mal-assimilation and mal-nutrition, with repugnance to food. These, therefore, are all doubly injurious; and if used in too large quantities or continued beyond a certain period, anemia, general debility, consumption, or other fatal affections may be induced.

None but an idiot, however fat, wishes to endanger his health by unwise efforts to reduce it, and many overweighted persons, anxious to throw off their fleshy burden, and aware of the danger of using anti-fat drugs, determinedly avoid them, and resort to walking, bicycling, gymnastics, rowing, massage, electricity, restricted sleep, thyroid extract, skimmed milk and other popular means; while a few begin a regular dietary system, Banting's, Ortel's, Ebstein's, Bruen's, or others, which all aim to limit the supply of elements that form fat and to increase its re-absorption; and I am glad to say, to the honor of their founders, that every dietary system, with which I am acquainted, seems to be based on rational principles.

But ball-and-chain rules, and iron-clad regulations requiring daily discomfort, long suffering, semi-starvation, strict dieting, etc., no difference by whom recommended, are rarely persevered with to a successful degree by persons with simple overfatness, and we rarely meet anyone wreathed in fat who has not begun on one or another or several different plans, and after awhile become either careless or disgusted and quit.

Neither with cases of enormous obesity nor with celebrities of fabulous proportions nor with overfat invalids or semi-invalids have we had any special experience, but if any healthy person, whether male or female, weighing less than 300 pounds, with simple uncomplicated overfatness, wishing to make a fair, honest and faithful trial of our plan to diminish overfatness, will begin and drink a large glass of water in which one heaping teaspoonful of Obesity No. 1 has been dissolved twenty or thirty minutes after each of the three daily meals, one day and a similar glass of Obesity No. 2 after each of the three daily meals the next day, and persistently continue to take them thus, week after week, he will begin and gradually lose fat until he comes down to medium

weight and stoutness, and be correspondingly relieved of the discomforts and the dangers of obesity; after which their use should be discontinued.

It is useless to take either of the obesity salts alone, as they act only when both are taken, and taken alternately. The temperature at which they are used is immaterial.

While using the obesity salts the person should, as a necessary guide, keep tally on his girth and weight by taking his measures and by carefully weighing his body in the same clothes and on the same accurate scales every two or three weeks, and if he has lost more than a couple of pounds for each week, take less than a teaspoonful of each at every drink, and if he has lost less than a couple of pounds for each week, squeeze a few teaspoonfuls of lemon juice into each glass of Obesity No. 1, and also add one teaspoonful of aromatic spirits of ammonia to each glass of Obesity No. 2.

He should also lend assistance to the action of the medicine by a not too restricted diet, which is not good even for the obese, but by using starches, sugars, fats, alcoholics and all other fat forming food but sparingly; avoid overeating, and use neither food nor alcoholics except the regular meals; also take early and light suppers, so that from that time until breakfast, the longest of the three intervals between meals, there may be but little material for fattening and favorable conditions for reduction; and especially that there may be complete emptiness of the stomach during sleep, so that nature may then utilize some of his surplus fat as fuel for the ceaseless wear and tear. He should also take moderate outdoor exercise, on foot or wheel, or in any other way that will increase and deepen his respiration and promote tissue oxidation.

After taking these salts and following these rules for a while, he will find that he is losing part of his girth and a couple pounds of avoirdupois every week, and that the loss consists entirely of useless fat; and that his appearance, activity and feelings will all be improved—just as if there exists some natural antagonism between these salts, taken thus, and adipose tissue; more especially that located in the great fat-centers already mentioned.

The more firm and solid the flesh, and the longer one has been fat, the more slowly it yields. Such a one, if quite fat and belonging to a constitutionally fat family, with proportionately small lungs, might require a persistence with the salts methodically for six months or even longer, unless the ammonia and lemon juice are added regularly. Ungovernable appetite, failure to exercise, tippling, etc., may also retard or prevent success.

In some of these "stubborn" cases, a considerable decrease of size with but little lessening of weight has been observed.

In addition the salts not only reduce overfatness but also tend to permanently correct the irregular and excessive fat-making activity on which it depends, without injury to health. The person gradually

becomes thinner, looks healthier and feels younger and more active as his or her superabundance disappears. At the same time, the skin being an elastic and active tissue, contracts correspondingly, leaving neither flabbiness nor wrinkles, bagginess nor crow's feet, while brain, muscle, nerve, blood and glandular nutrition and strength, all remain normal, proving that this method does not cause either pathological diminution or shriveling from reducing the flesh or loss of strength; or constipation from impaired digestion, as the various "anti-fat" blood depuratives and glandular eliminatives are notoriously apt to do.

To properly appreciate this fact it must be remembered that a person in normal flesh has as much blood, and usually better blood, than a similar person whose weight has been ever so much increased by fat, and that the salt acts on the fat and not on either the blood, the glands or the bowels.

When the excess is chiefly below the waist, causing what is called "large stomach," wearing a snug abdominal supporter or a moderately tight abdominal binder while pursuing the method, makes the fat disappear much more promptly from this locality, and also braces up the reduced form as absorption progresses.

The records of eleven cases, seven males and four females, who have used the salts show the following positive results: A fat grocer, reduced from 310½ pounds to 289 pounds in eleven weeks; barkeeper, reduced from 223 to 180 pounds in nineteen weeks; a lawyer, reduced from 191 to 173 pounds in fourteen weeks; young real estate agent, from 173 to 151 pounds in twelve weeks; clergyman reduced 16 pounds in nine weeks; lady, aged 28 years, from 286½ to 264 pounds in thirteen weeks; stout actress, from 173 to 166 pounds in seven weeks; young English lady, from 149 to 142 pounds in five weeks; conductor on steam cars, from 183 to 174 pounds in six weeks; lady, aged 41, from 173½ to 160½ pounds in eleven weeks, and that of a physician, who was reduced from 211 to 196½ pounds in nine weeks.

Full directions sent with each bottle of the salts. One pound of each contains salt enough for two months' treatment. Price per pound, \$1.75. Price per half pound, \$1.00.

CURE FOR POISONING BY POISON IVY OR FOR POISONING BY ANY OTHER PLANT.

This is a safe and sure cure for the poisons named above and will effect a speedy cure in each instance if used according to directions. It has been in use for a number of years and has yet to fail to cure a case. It is used extensively by physicians and is recommended by them in every instance where they have tried the remedy.

Directions—First bathe the poisoned surface with water as hot as can be endured; continue this for five or ten minutes and immediately on

stopping the bathing apply the powder to the surface while it is yet moist. Repeat the application every two or three hours. Four or five applications will be sufficient to effect a cure in most cases. Price, \$1.00 per box.

SPRING BLOOD MEDICINE.

In the spring after having passed through a season of sudden changes, one often feels the need of something to tone up the system and get everything in good working order before the heat of summer comes on. Many people supply such a remedy by purchasing a patent medicine of some sort. The blood purifier which is here offered for sale is a combination of those elements which have an alterative effect on the human body, and in combination with these are the drugs which tend to act as tonics. Among other things, this medicine contains fluid extract of Sarsaparilla, Yellow Dock, Gentian, Iodide of Potassium and Iron. The medicine is put up in large eight ounce bottles and full directions are sent with each bottle. Price \$1.00 per bottle.

EYE WATER.

The Home Remedy Company is in possession of the formula for Eye Water which has long been used by one of the foremost eye specialists in this country, in his private practice. It is a very superior Eye Water and is used for any of the milder forms of eye trouble which occur. It is used when the eyes burn, smart, water, feel as though there were sand in them, are red, inflamed, and in fact it may be used with safety in any case of sore eyes. Full instructions for its use sent with each bottle. Price 50 cents.

CURE FOR GALLSTONE COLIC.

No more distressing colic occurs than that produced by gallstones. It has been the practice, even among physicians, to give morphine in each and every case of gallstone colic. This is not only an unnecessary procedure, but really hurtful to the patient. The remedy which is here presented contains no morphine nor any opiate of any kind. It is a specific for this form of colic and if used according to directions will cure the most severe case of gallstone colic in from ten to twenty minutes.

It will not only cure the colic for the time being, but if taken according to directions will prevent the return of the trouble after a few weeks treatment. Full directions sent with each bottle. Price, \$1.00.

CHAPPED HANDS.

Although the chapping of hands may not be called a disease, yet the frequency with which it occurs will be excuse enough for giving a treatment for the trouble here. To care for chapped hands, take one part of glycerine and two parts of alcohol and mix thoroughly; wash the hands carefully and apply the lotion while the hands are moist. This will very soon cure the worst form of chapped hands.

PERSPIRING FEET.

To check this, bathe the feet each day in cold water and immediately rub with the following: Tannic acid, one and one-half drams, alcohol four ounces, mix thoroughly. In addition to this, dust the feet freely each day with Talcum powder.

TO REMOVE CORNS.

A corn is a very troublesome thing and various means have been devised for the cure of the callous growths. The removal of the corn will not effect a permanent cure, however, as the same thing which caused the corn in the first place may cause it again; therefore in the treatment of corns they must first be removed and then the pressure which caused the corn in the first place must be permanently removed. Never wear a shoe that even borders on tightness on a foot from which a corn has been removed. The removal of a corn is not a difficult matter and if care is used and directions followed there is but little need of suffering with painful corns. The remedy which is here offered will do the work thoroughly, and full directions are sent with each package. The application of the remedy causes no pain and from two days to two weeks is required to remove a corn. Price, 25 cents per package.

PILE CURE.

In the body of the book the subject of piles was taken up and discussed and treatment was recommended. In the majority of cases the treatment there given will effect a cure, yet some stubborn cases will occur, and for such cases the Home Remedy Company has a special medicine which has given the highest satisfaction in many cases. It will gladly answer any questions as to the treatment and care of this disease, and can fully recommend the remedy which is here offered. Full instructions sent with each package. This is not a patent medi-

cine in any sense of the term, but is a remedy compounded on scientific principles, and the full formula will be furnished with a package of the treatment if it is desired. Price, 50 cents per package.

TOILET ARTICLES.

The Home Remedy Company does not attempt to carry a line of either toilet articles or toilet supplies. It is, however in such close touch with the wholesalers of such articles that it can furnish anything which can be bought in a drug store at a very much reduced rate. Should any article be wanted, write to the company for prices and they will be forwarded promptly.



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